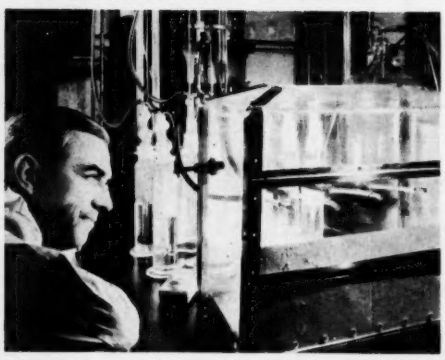
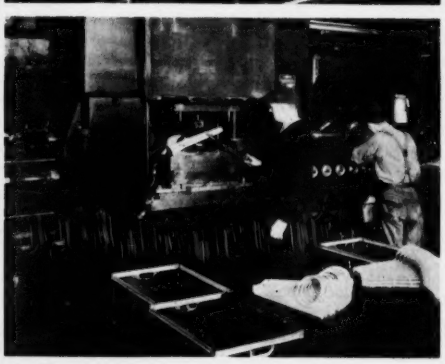
Chemical Week

March 28, 1953

Price 35 cents





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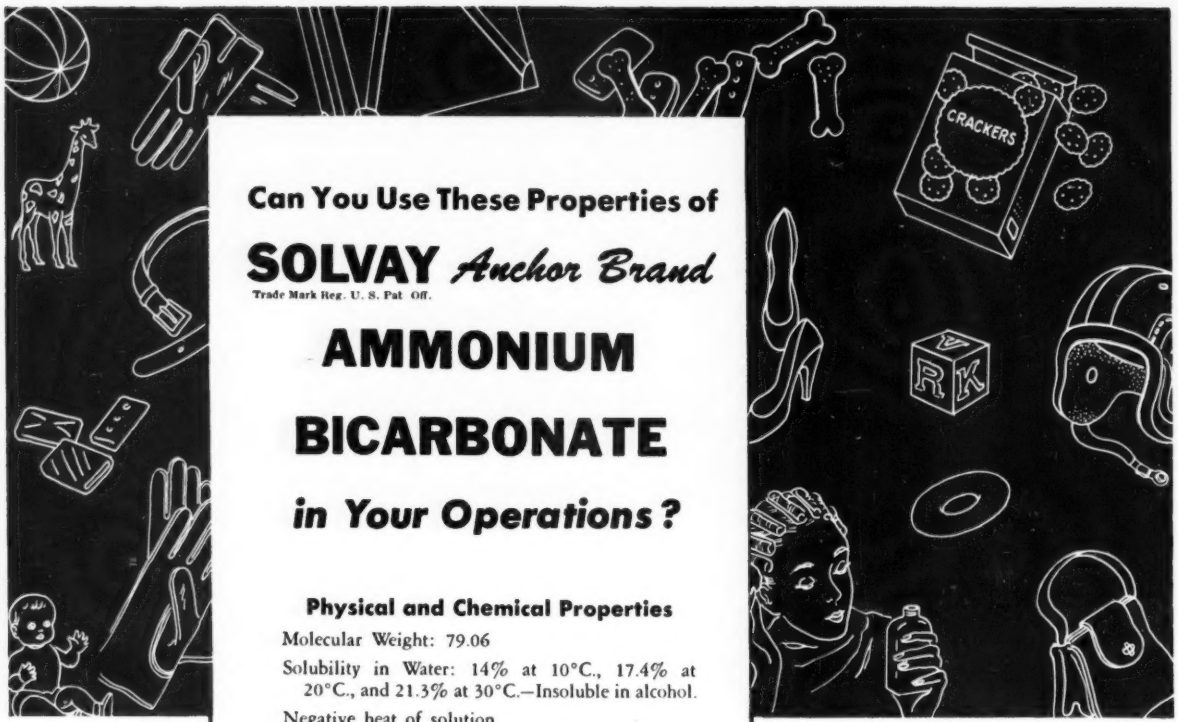

Can You Use These Properties of

SOLVAY *Anchor Brand*

Trade Mark Reg. U. S. Pat. Off.

AMMONIUM BICARBONATE

in Your Operations?

Physical and Chemical Properties

Molecular Weight: 79.06

Solubility in Water: 14% at 10°C., 17.4% at 20°C., and 21.3% at 30°C.—Insoluble in alcohol.

Negative heat of solution

Stability: Relatively stable at room temperatures. Rapidly and completely volatile at 140°F. and above. Rate of decomposition increases as temperature rises. The gases formed in this process are as follows:

Ammonia gas (NH_3)	21.5%
Carbon dioxide gas (CO_2) . .	55.7%
Water vapor (H_2O)	22.8%

pH of 1/10 N solution at 25°C.: 7.8

Appearance: White Crystals

Quality: Exceptionally pure. Food grade. Can be used as a reagent. Very low metal content.

Some Typical Uses of Anchor Brand AMMONIUM BICARBONATE

Fluffing and Adding Bulk to Cookies, Biscuits, Baked Pet Foods

Manufacturing Sponge Rubber

Creating special forms of Plastics and other Materials

Cold Wave Solutions

Chrome Leather Tanning

From biscuits to plastics . . . from chrome leather processing to cold wave solutions—these are the varied fields in which Solvay "Anchor Brand" Ammonium Bicarbonate has already found important use. The properties and unusual features of this versatile product suggest many other uses; it may find application in *your* operations.

Solvay "Anchor Brand" Ammonium Bicarbonate is a safe, low cost source of ammonia and carbon dioxide. It can be used to create voids, decrease density and add bulk in plastic materials. It is an exceptionally efficient neutralizing agent, although it has an unusually low pH. It has higher neutralizing value than either borax or sodium bicarbonate—and yet a 1/10 normal solution at 25°C. has a pH of only 7.8. And—because "Anchor Brand" Ammonium Bicarbonate volatilizes completely at relatively low temperatures—it leaves no residue to affect the end product.

For samples and more detailed technical information, fill in and mail coupon.

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SOLVAY PROCESS DIVISION

Allied Chemical

Allied Chemical & Dye Corporation

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I am interested in the possible use of Solvay "Anchor Brand" Ammonium Bicarbonate in my operations. Please send me, without cost or obligation, samples and further technical information.

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Chemical Week

Volume 72 • March 28, 1953 • Number 13

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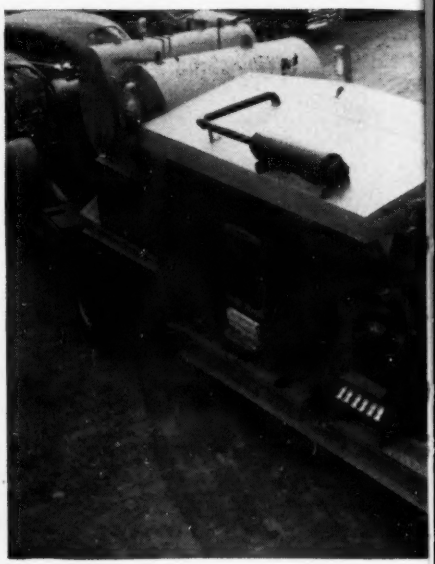
OPINION . . .



Mobile Power

TO THE EDITOR: The Mobile Power Plant on a railroad flat car (Feb. 14) might be "the answer to a thorny problem of needing a boiler at different locations" by means of rail, but we had answered the same problem in 1948 by building a mobile steam and electric power plant on a truck trailer (*see cut*) . . .

It was built on a fifteen ton flat trailer, had an 80 horsepower, 125 pound oil fired package steam generator with boiler water storage tank and boiler water feed pump; a Diesel generator set which could deliver18 KW of 220/440 volt, 3 phase, 60 cycles electrical power; and Diesel oil and fuel oil storage tanks.

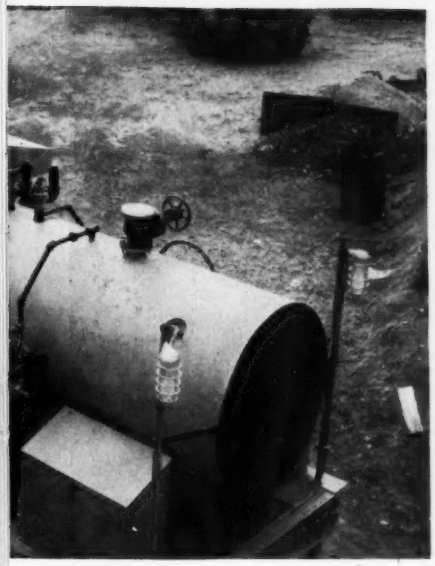
EDWARD L. CHERENSON
Artisan Metal Products Inc.
Waltham, Mass.

Super Letter Writer

TO THE EDITOR: . . . When you exposed the organic farming propagandists you suggested that most of the letters you received from its staunch advocates were similar in vein . . . that this indicated that they originated —directly or indirectly—with the pub-

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

Address all correspondence to: W. A. Jordan, Chemical Week, 330 W. 42nd St., New York 36, N.Y.



lication *"Organic Gardening."* . . .

If you take a look at the enclosed publication, *"Prevention"* . . . which is published by the same man as *"Organic Gardening"* . . . you may confirm a suspicion.

This journal is now featuring an anti-fluoridation campaign and suggests (on p. 25) that readers send in contributions so that the magazine . . . will be able to send out publicity letters on anti-fluoridation "to as many newspapers as possible throughout the country." . . .

I'm not suggesting that the anti-fluoridation people are wrong—I have some doubts about the worth of fluoridation myself—but it looks as if the organic farmers may have a good many of their letters "written" for them . . .

L. S. Rawlins
Norfolk, Va.

DATES AHEAD..

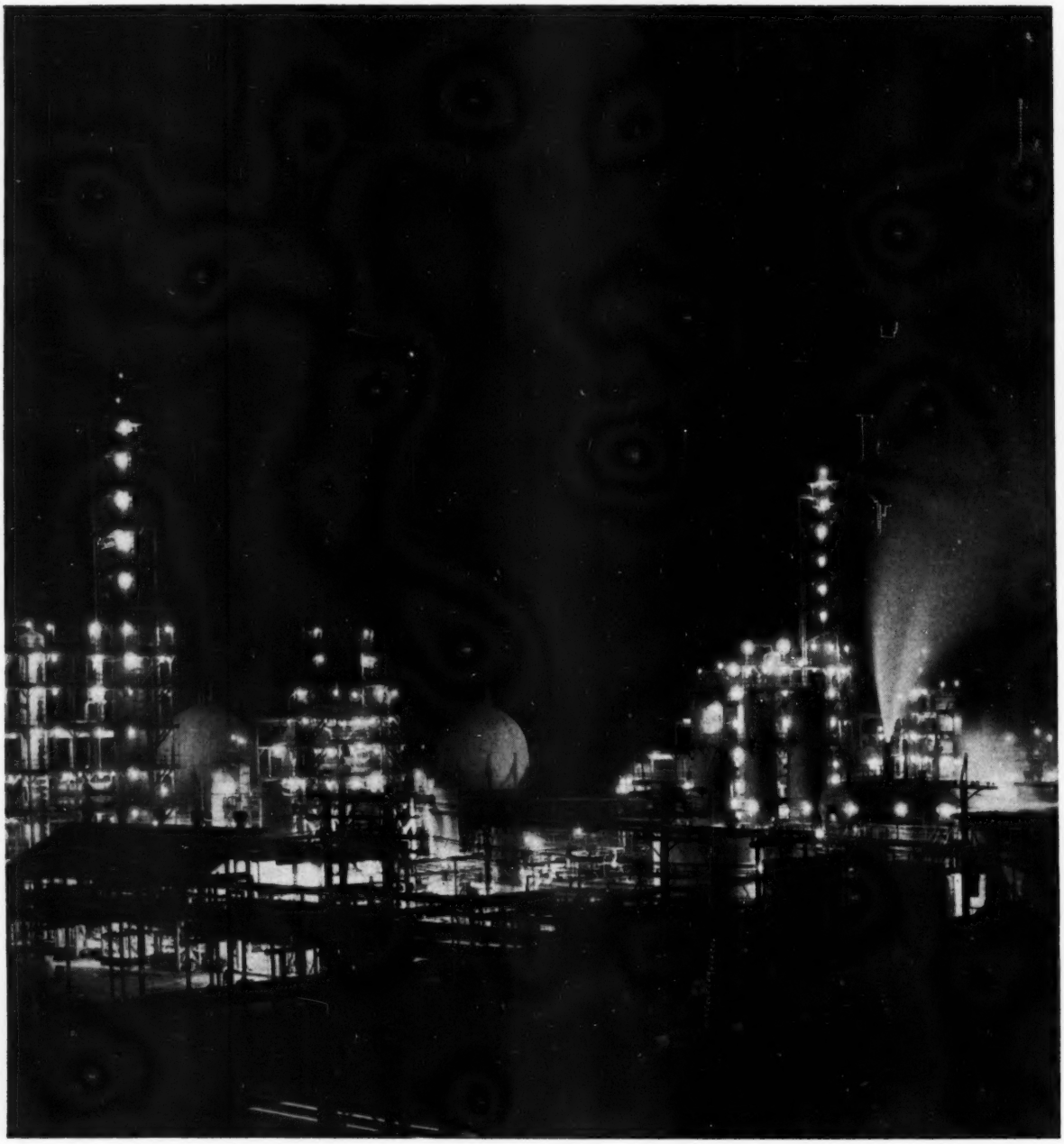
Amer. Society of Mechanical Engrs., Deshler-Wallick Hotel, Columbus, O., April 28-30.

American Oil Chemists' Society, 44th annual meeting, Roosevelt Hotel, New Orleans, La., May 4-6.

Instrumentation in Water, Sewage and Industrial Waste Treatment, conference, Manhattan College, New York, N.Y., May 14.

Armed Forces Chemical Assn., annual meeting, Hotel Waldorf-Astoria, New York, N.Y., May 20-21.

Chemical Institute of Canada, annual conference, Prince Edward Hotel, Windsor, Canada, June 4-6.



Standard Oil Co. (N. J.) Photo by Rotkin

Petroleum, the mammoth and Aladdinlike industry that supplies Americans with an ever-growing list of products, has invested more than $19 billion in new equipment in the postwar years, has increased 1940 production by 63 per cent. Pennsalt Chemicals . . . hydrofluoric acid, ammonia, caustic soda, chlorine, and corrosion-resistant cements . . . play a major role in modern petroleum refining.

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Pennsalt Chemicals

PROSPERITY IN THE USA: How Deeply in Debt Are We?

How prosperous *are* the people of the United States? Previous messages in this special series have answered this question in part by recording the progress – relatively slow progress – we have made in increasing both the income and the wealth per person in the USA.

This fourth and concluding piece of the special series deals with the extent to which our prosperity should be discounted because it has been accompanied by an increasing volume of debt. Many correspondents have suggested to us that an individual or a nation can temporarily increase prosperity by borrowing, but in so doing lives on both borrowed goods and borrowed time. Our purpose here is solely to throw light on the question of whether or not we are now in that unenviable position.

On January 1, 1953, the total debt of the United States government and of its citizens was $627 billion, as shown in the table below. On its face, a debt of this magnitude, which represents about $3,900 of debt for each person, suggests that we are heavily debt-ridden.

TOTAL DEBT – PUBLIC AND PRIVATE

Federal government debt	$267	billion
State and local debt	30	"
Private debt		
Corporations	195	"
Individuals	135	"
	$627	billion

The burden of our debts, however, does not depend simply on their size. It depends in much more decisive degree on our capacity to carry the load successfully. This capacity, in turn, is partly a matter of attitude, and attitudes defy objective measurement. A community that gets very jittery about its debts has less capacity to carry its burden successfully than one that does not. But the accurate measurement of jitters, present or prospective, still remains to be mastered.

Capacity to Carry the Debt Load

Nonetheless, it is possible to throw some light on our capacity to carry the debt burden by studying key economic elements that can be measured with some degree of accuracy. The following paragraphs indicate how some of these key economic elements stand.

Compared with our national income, the total volume of our debts, public and private, is still well below the level of 1929, when it proved to be too big for the good of the country. Our total debt is now 113% greater than the national income whereas in 1929 it was 146% greater.

There are several other cheering facts about our debts. One is a sharp decline in interest rates which makes the cost of carrying our debts relatively much less than it was in 1929. It took 8% of our total national income to carry our debts in 1929; it takes only about 5% of the income today.

More Cheering Facts

We also have much more ready cash now than in 1929. Today individuals and corporations hold a total of $269 billion in cash or its equivalent which is almost twice as much as the portion of private short-term debt (about $140 billion) that is subject to sudden demand for payment.

Many students of the subject cite the relatively low cost of carrying our debts and the large volume of cash on hand, and reach the comfortable conclusion that our debt burden is nothing to worry about. In further support of this view they emphasize the fact that no important part of our debt is owed abroad. Hence, they reason there is not the danger, so conspicuous in Britain since the end of World War II, that our economy will be upset by the necessity of making heavy debt payments to other countries.

Some Dangers of Present Debt

However, the nature of our debts presents dangers that it would be foolish to ignore. This is true of both the debt of $267 billion owed by the federal government to its citizens and the $330 billion in private debts owed by some citizens and corporations to others.

Public debt can be a dangerous kind of debt because government has the power to print money or to create its equivalent by expanding bank credit. Of the $215 billion that the federal government borrowed during World War II, over $90 billion was borrowed from banks. This was the largest single contributor to the inflation of prices that since the war has robbed the dollar of about half of its purchasing power, and thereby robbed the buyers of government bonds of about half the purchasing power these bonds were supposed to represent.

If, as is quite possible, a new emergency should again require the federal government to borrow heavily while its debt remains so high, it is doubtful that the public would be avid to buy its bonds. Hence, the government might again be forced to resort to the inflationary process of relying on bank credit.

Private debts can be dangerous if the people take on new debts more rapidly than is justified by the growth of business or by their ability to repay. Last year bank loans were increased by the imposing sum of about $6½ billion, which represents an increase of about 11% in total loans outstanding. This is almost twice as much as the increase in the volume of business over the same period. Installment credit for consumers increased by $3 billion last year, again an increase in debt about twice as great as the increase in business volume in the fields where the credit was used. It is also the fastest rate of such growth in our history.

Constructive Use of Credit

So long as the expansion of credit does no more than keep pace with expansion in the volume of business, the expansion is constructive. Also, when credit is expanded to acquire resources and equipment that will enlarge the volume of business a little later, that use is clearly constructive. But when private credit expansion begins to run ahead of business growth, it is time for us to be heads up. Such credit expansion courts price inflation. It also creates a forced draft under business so that, if credit is cut off, there may be a painful drop.

To give a summary answer to the question: *Is the level of debt in the United States a danger to our prosperity?* — the answer seems to be, "Not at the moment." We owe nothing abroad. The interest burden on present debt is relatively small, and we appear to have the resources to handle the short-term debt. Yet both the total amount of debt and the recent rapid increase in total private debt, especially the latter, are enough to signal for caution. We need restraint on the part of business and consumers to avoid expanding private borrowing at an excessive rate. The federal debt needs to be reduced and put in more manageable form. If these things are done, we can proceed to build a sound prosperity.

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Rochelle Salt
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Sulphenone
Sulphur (specially processed for all uses)
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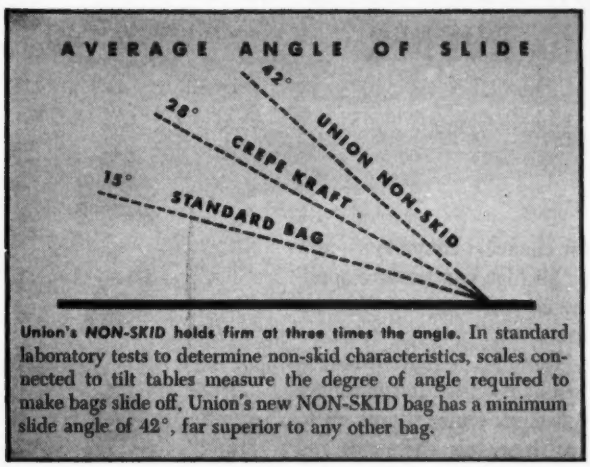

Union's *NON-SKID* holds firm at three times the angle. In standard laboratory tests to determine non-skid characteristics, scales connected to tilt tables measure the degree of angle required to make bags slide off, Union's new NON-SKID bag has a minimum slide angle of 42°, far superior to any other bag.

Union's brand-new
NON-SKID Multiwall Bag
guarantees better performance at
every stage of your
packaging, storage and shipping operations
where skid control is essential.

Union's *NON-SKID* is a
performance-proved Multiwall
with the addition of
an exclusively developed resin-like emulsion.
Almost invisible to the eye,
this new spray makes this the first
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This new bag delivers a far greater *non-skid* rating in every direction . . .
even greater than bags made of creped kraft.

Size — Stock — Delivery

Available in Union Multiwalls of all sizes with either a kraft or bleached outer ply. Initial capacity may be limited. Orders will receive priority in order of receipt. Investigate now.

BEST APPLICATIONS

Union's *NON-SKID* is particularly recommended for feed, chemicals, flour, synthetic rubber, starch, fertilizer, insulating materials, and other products in whose packaging material handling is an important consideration.

DRIVER COULDN'T MAKE *NON-SKID* BAGS SLIP OFF!

In one plant test, a gasoline-powered truck was loaded with these bags. The driver was instructed to make them slip off.

He started forward at full speed, then applied brakes full force.

Although momentarily the truck itself threatened to tip over, the stack of NON-SKID Multiwalls resting on the forks merely leaned slightly, then settled back to their original position.

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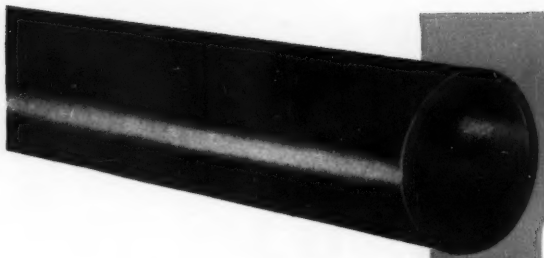

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Ace Tempron . . . a new synthetic hard rubber for chemical equipment—now offers unexcelled chemical resistance *plus* economy for high temperature applications. In your plant, Tempron can handle many corrosive liquids—*hot*—at costs below other materials you've had to use up to now.

Based on nitrile synthetic rubber (Buna-N), Tempron is *hard* rubber—with better temperature and chemical resistance than hard or soft nitrile rubber compounds hitherto available. Mechanically it withstands temperatures up to 225 deg. F. and higher. Chemically it resists most inorganic chemicals and many organic chemicals and oils at temperatures to 200 deg. F.—and far higher in specific instances. At room temperature it has better resistance to some of the organic chemicals than other rubber and plastic materials.

In one case, Tempron pipe is still in excellent condition after 2 years on hot brine, far exceeding the life of the steel pipe it replaced.

We're now ready with Tempron pipe in 1", 1½", 2", 3" and 4" sizes and fittings in 2", 3" and 4" sizes. Additional smaller sizes of pipe and fittings are under development. We can also—now—produce molded parts, and sheets, rods and tubes from which we (or you) can fabricate a wide variety of parts.

Write today for new bulletin No. 96-A giving full details of Tempron. Or ask for samples and recommendations for your specific applications.

ACE TEMPRON resists:

TESTED AT 200 deg. F.	Hydrochloric Acid, 38% Sulphuric Acid, 50% Phosphoric Acid, 85%	Sodium Hydroxide, 20% Sodium Chloride Ethylene Glycol	Formaldehyde Kerosene Ferric Chloride Stannous Chloride
TESTED AT 78 deg. F.	Benzaldehyde Aniline Pyridine Gasoline	Ethyl Acetate Benzene Toluene Carbon Tetrachloride	Ethylene Dichloride Chlorobenzene Carbon Disulfide Nitrobenzene

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Chemical Week
BUSINESS MAGAZINE OF THE CHEMICAL PROCESS INDUSTRIES

NEWSLETTER

CHEMICAL COMPANY EARNINGS—Calendar 1952

(000 omitted)

	Total Sales		Pre-Tax Earnings		Taxes				Net Earnings			4th Quarter Net	
	1952	1951	1952	1951	1952	%	1951*	%	1952	1951	%	1952	1951
Allied Chem. & Dye	$490,183	$502,027	$80,417	$106,708	$40,112	49.9	$66,159	62.0	$40,305	$40,549	— 0.6	$10,596	$10,714
American Agric. Chem.	55,112	52,222	10,353	8,110	4,030	38.9	4,200	51.8	6,223	3,910	61.7	627	659

Allied Chemical & Dye's earnings last year were well over six times what we reported on p. 15 of last week's issue. What happened: two lines of type—involving Allied Chemical and American Agricultural Chemical Co.—were jumbled by the printer, with the result that some figures pertaining to the latter were ascribed to the former. Correct figures for the two firms appear above, and anyone desiring a corrected p. 15 of the March 21 issue may have one for the asking.

Chemical expansion last year was phenomenal—a resounding $1,451 million was invested in new plant and equipment. But this year, says the U. S. Department of Commerce, last year's topper will be topped by another 8%, and total outlay is estimated at $1,571 million. Industry as a whole plans a 2% increase; and thus the chemical segment is out in front four times over.

This is quite a different picture from that painted by an earlier survey three months ago. Then it appeared that chemical investment would fall 4%, and that over-all industrial investment would show a precipitous drop. The change from dark to light underscores industry's basic, confident optimism for the years ahead.

Dow Chemical now officially confirms what CW said last week (p. 17)—that it will build a polyethylene plant. Negotiations with Imperial Chemical Industries for patent licenses and technology have been completed, and Dow is ready to roll at Freeport, Tex. It plans to be ready for production in 18 to 24 months.

Something new under the sun is underground storage of ammonia in natural reservoirs. Within two weeks the Texas Railroad Commission will hear an application by Phillips Chemical for permission to drill wells into salt beds, dissolve the salt to form caverns, and inject ammonia. The salt beds lie 1,500 to 2,500 ft. under Phillips' Cactus plant, in Moore County.

Annual reports are still rolling off the presses, but the later ones don't change the mixed general picture:

- Freeport Sulphur's sales rose from $34.8 million to $38.3 (up 10%); net climbed from $6.3 million to $7.3 million (up 16%).
- Borden Co. didn't separate the figures for its chemical operations from those of its food business, but it says that the Chemical Division's sales and profits declined.
- Canadian Industries Ltd.'s experience shows that business trends in Canada are no different from those here: sales rose 4% to $143 million, but net profit fell 7% to $10.8 million.

General Services Administration is still dragging its feet on selling the war-built alumina-from-clay plant at Salem, Ore. (CW Newsletter, Jan. 10). Earlier this month a Salem Chamber of Commerce official went to Washington, tried to get GSA to sell the plant to a bidder that would operate or develop the industrial potential of the facilities.

Harvey Machine Co.'s bid seems to be getting the most favorable attention; it plans to make use of the plant in connection with its primary aluminum reduction project. Also under serious scrutiny by GSA is the bid of Schnitzer & Wolfe, Portland, Ore. The firm—a sales subsidiary of a large salvage yard—hasn't revealed its plans except that it would "produce chemicals" and liquidate the unused portion of the plant.

Another entry in the aluminum derby, Wheland Co., last week got a fast write-off for its proposed $50-million plant. It hasn't picked a site yet, but Johnsonville, Tenn., is one of the localities being considered. In any case it will be in the Tennessee Valley area. Foremost problem at the moment is not the site, but finding private capital, says a Wheland official.

Planned by Wheland for a Gulf site, also unpicked as yet, is a $20-million plant to produce alumina from South American bauxite. The alumina would be barged to the TVA-area plant for reduction.

Smelting clay by a TVA-developed process to produce aluminum-silicon alloys will be undertaken commercially by National Metallurgical Corp., a newly formed subsidiary of Apex Smelting and American Smelting & Refining. The plant will be built at Springfield, Ore.

TVA started work on the process during the war, sent samples of the alloys to various firms for evaluation. Apex found them useful as deoxidizing and reducing agents and as a basic raw material for high-aluminum alloy castings.

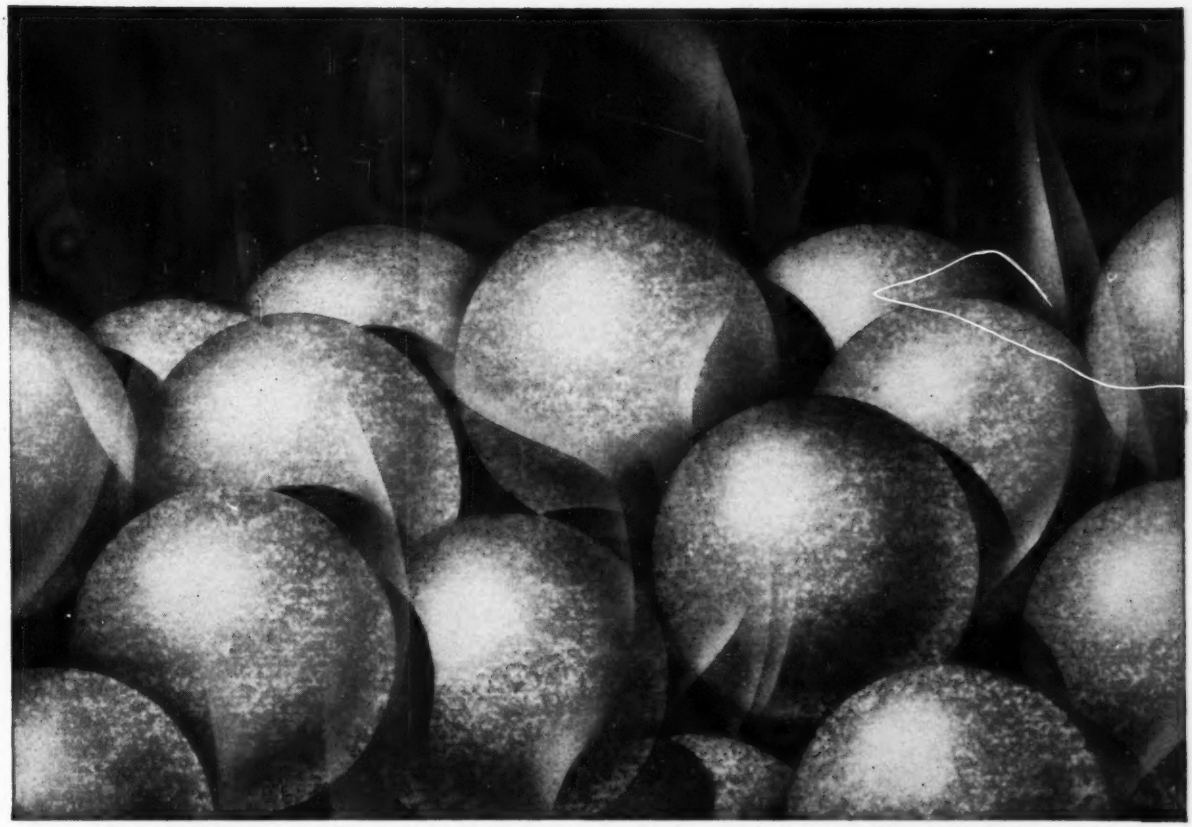
Awaiting the outcome of Federal Power Commission hearings, Pacific Chemical Co. is holding up decision on a site for its $7-million ammonia plant in the Pacific Northwest until it knows which of five firms will be enfranchised to pipe natural gas into the area. It will be in the Pasco-Kennewick area, on either the Snake or the Columbia River, but the exact location depends on whether the gas will come from Canada or New Mexico. Regarded as a tremendous agricultural market for the plant's production is the newly irrigated Columbia Basin north of Pasco.

A week for expansions and new enterprises, this has also been a week for controversies. At the legislative committee hearing on krebiozen at Springfield, Ill. (CW Newsletter, Mar. 21), krebiozen-supporter Andrew Ivy charged that a "commercial conspiracy" thwarted research on the drug —a conspiracy that extended to the American Medical Assn.

Countered University of Illinois President George Stoddard: "This investigation may prove helpful if it succeeds in doing what medical societies and the University faculty, administration and trustees have been unable to do—namely to induce the inventors to permit analysis of their drug and of the means of producing it."

And in North Carolina, a physician, Dr. Robert Mobbs, toting a briefcase full of alleged evidence of death and disease caused by insecticides, is busily trying to persuade state legislators to introduce a strict control measure. His contention: Federal bills take too long to operate, affect only interstate commerce.

. . . The Editors



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Catalyst supports to your special prescription

...*Norton engineered for your special requirements*

Where catalyst supports were applicable Norton engineers have been successful in meeting the requirements of a large variety of conditions.

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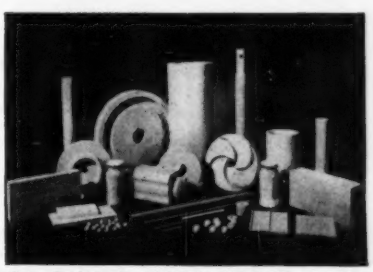
ALUNDUM* Catalyst Supports are a good example. They have such qualities as great refractoriness, chemical inertness, strength and high resistance to abrasive action. They are made by Norton's exclusive "controlled structure" process. It provides medium porosity of 30-35% with rough open structure for maximum adherence of catalyst, or high porosity 42-47% with large connected internal pores, uniformly dispersed for maximum deposition of the catalyst.

Test them yourself

See what Norton ALUNDUM Catalyst supports can do for you. If you would like to see samples, see your Norton refractories representative or write Norton Company, 543 New Bond Street, Worcester 6, Mass. *Canadian Representative:* A. P. Green Fire Brick Co., Ltd., Toronto, Ontario.



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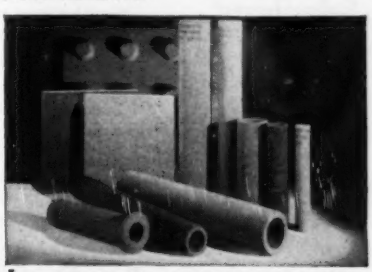

Norton Exclusive. Norton ALUNDUM *Seamless* Tubes for filtration, aeration, diffusion maintain constant air or liquid pressure. ALUNDUM porous mediums also available in plates, discs and diaphragms. Ask for Bulletin No. 140.

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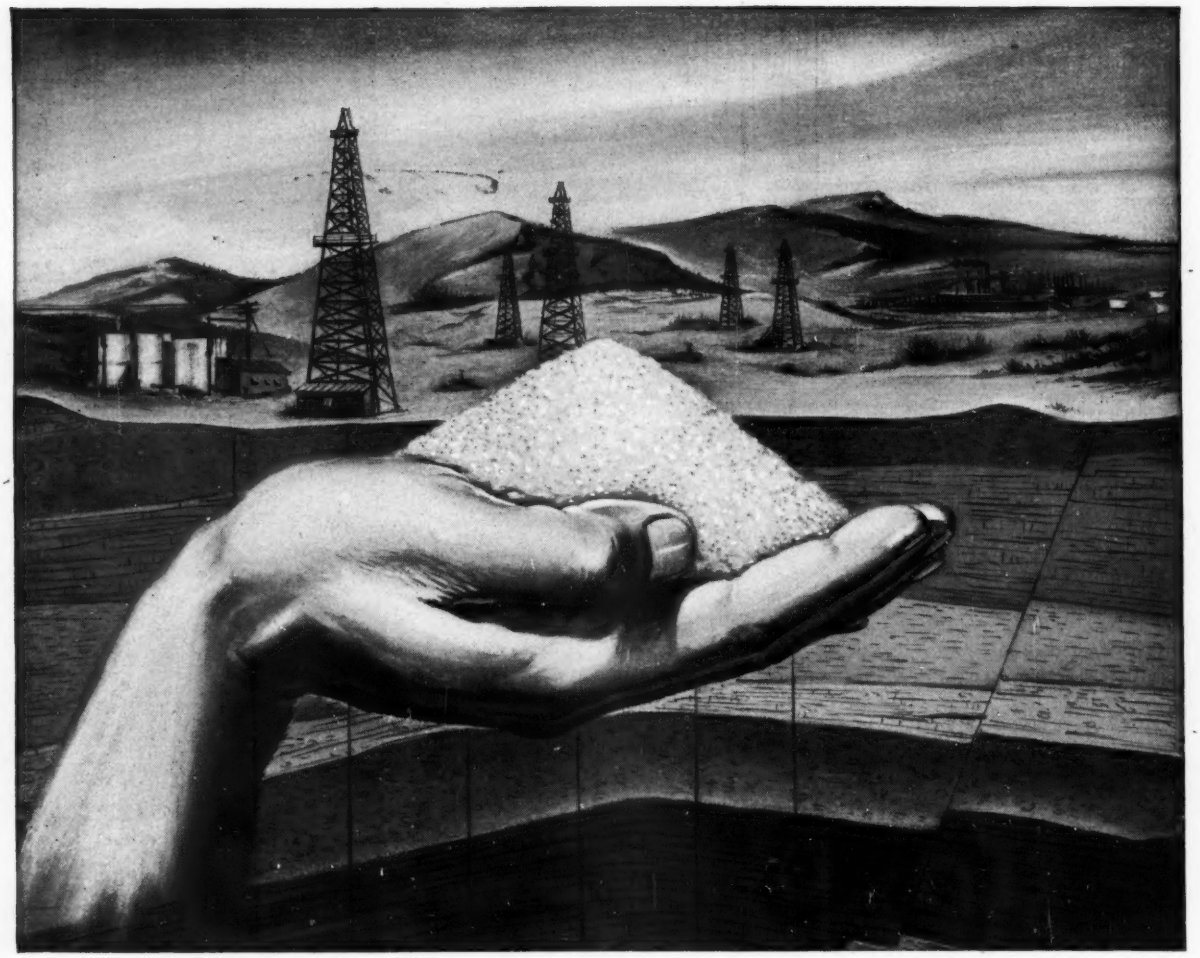

"Lift-up powder" for tired oil wells

How Celite filtration helps boost oil output

TO BOOST THE OUTPUT of "tired" oil wells bordering on the limit of economic production, profit-conscious operators inject water under extreme pressure into the porous oil sandstone and force out the accumulated oil. But first, they filter this repressurizing water with Celite* to remove the suspended solids which would eventually clog the microscopic pores of the sandstone, thus blocking the flow of water. *All waters contain at least a trace of these troublesome impurities.*

Celite's ability to do an exceptional filtering job can be attributed to these important factors which make it unique among filter aids:

Carefully processed from the purest deposit of diatomaceous silica known, Celite is available in nine standard grades—each designed to trap out suspended impurities of a given size and type. Whenever you reorder, you are assured of the same uniform, accurately graded powder received in your initial order. Thus, with Celite, you can count on consistent clarity in your filtrates—at highest rate of flow—month after month, year after year.

The secondary recovery of oil by water flooding is just one of many processes in which Celite has provided the absolute clarity vital to a successful operation. The proper grade of Johns-Manville filter aid will assure you the same results—regardless of the product or process involved. To have a Celite Filtration Engineer study your problem and offer recommendations, simply write Johns-Manville, Box 60, N.Y. 16. No cost or obligation.

*Reg. U. S. Pat. Off.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville CELITE

FILTER AIDS

BUSINESS & INDUSTRY . . . .

Face Lifting for FTC

After 20 years of Democratic control and an allegedly "antibusiness" attitude, the Federal Trade Commission is about to "go Republican."

Although he has fought against the agency in numerous law suits, the GOP lawyer nominated for FTC membership says its laws are good and he'll enforce them.

Eisenhower's first appointment to the Federal Trade Commission changes its complexion from what it has long been under the Democrats. Republican Edward F. Howrey, nominated last week to succeed Democrat James M. Mead, was expected to be named chairman, too—But this couldn't be done until he had been sworn in as a commissioner.

As a member of the Washington, D. C., law firm of Sanders, Gravelle, Whitlock & Howrey, he's been arguing the businessman's side of FTC and antitrust cases more than 20 years, including some suits that have impact on chemicals and other heavy industries.

Limit on Discounts: Two of his cases will make FTC history when the Supreme Court finally rules on appeals he's carried from precedent-setting FTC decisions:

• He represented Firestone Tire & Rubber, one of the "big four" tire makers involved in FTC's first attempt to fix the maximum size of a shipment on which a seller can give a quantity discount. The commission ruled that a single carload is the largest quantity on which an added discount may be granted in the tire industry; in other words, the buyer of two carloads gets no better price than the buyer of one. If FTC's rule sticks, there will be a drive by small buyers in many industries – including chemicals – to apply this kind of price regulation and prevent large buyers from getting a lower price.

• He represented Automatic Canteen Co. of America, in one case now awaiting decision by the Supreme Court. The case will determine whether a buyer is violating section 2-F of the Clayton Act if he accepts discriminatory price discounts. The court has long upheld FTC in finding sellers guilty of price discrimination under this section.

Demos Are Wary: Senators Magnuson (D.-Wash.) and Pastore (D.-R.I.) both raised the question of whether Howrey's long experience in defending business wouldn't disqualify him as a commissioner. Magnuson said Howrey would be in the position of a "devil's advocate."

Howrey said he thought all the laws FTC enforces are good, and that he knew of "no existing statute that I don't believe in and would not enforce."

FTC's HOWREY: A "devil's advocate"?

But he said he would disqualify himself on any future hearing involving old clients or in cases following the policies he fought in the tire and automatic canteen cases. Some senators questioned whether such disqualification would not result in two-to-two Democratic-Republican splits on key issues the commission has to decide.

Chairman Holds Helm: But regardless of how the commissioners themselves vote on policy, the new chairman can do much to change the direction and emphasis of FTC's program of economic investigation and law enforcement. The other four members vote on policy questions and decide cases; but the chairman is responsible for staff appointments, divides the duties, largely controls budget requests.

Howrey hasn't said what he'd do about stepping up conferences, consent stipulations, and other methods of settling cases out of court.

One thing's certain, though: Howrey's appointment changes the color of FTC philosophy from 3-2 "liberal" to 3-2 "conservative." Another vacancy comes up in September, when Democrat Stephen J. Spingarn's term expires. Spingarn's seat will go to a Republican, bolstering the conservatives considerably.

Escape Clause

A chemical company has won a U.S. Supreme Court decision shielding that firm and some 45 other concerns from prosecution for alleged violation of the federal law against employment of boys under 16 years of age and girls under 18 in certain "hazardous" jobs. In the case of the Unexcelled Chemical Corp., Jersey City, N.J., the high court holds that the two-year statute of limitations contained in the portal-to-portal act of 1947 prevents the Department of Labor from bringing suit charging violation of the Fair Labor Standards Act. The Labor Department has accused Unexcelled of using "child labor" while engaged in defense work during World War II.

Now, the Department appears to have just two courses of action in this matter:

• Ask Congress to change the portal-to-portal act to provide more time to investigate suspected violations—but it looks as though the present Congress won't be receptive to this request.

• Start to exercise its own power under the Walsh-Healey Act, which requires that child labor and other regulations be written into every government contract for more than $10,000. "Contractors found to have breached any of the provisions of the contract may become ineligible to receive government contracts for a period of three years."

New Day on Write-offs?

Tax relief for fast-growing chemical companies is one of the goals Treasury officials have set for themselves in a major overhaul of depreciation allowance policies.

Studies are under way to liberalize the present system of rigid depreciation formulas, which have been in effect since 1934. Chemical companies have long complained that Bureau of Internal Revenue rules hamper growth by holding down depreciation allowances below actual experience.

The new Treasury team, to a man, feels that the present rules are too rigid. Under-secretary Marion B. Folsom—who knows the chemical industry well from his long experience as treasurer of Eastman Kodak is dusting off a half-dozen ideas for liberalizing the regulations.

Present regulations were worked out in 1934 as a method of increasing tax revenue. They've been called the worst depreciation rules of any major industrial country—and few tax theorists or business men would argue the point. The rules have been retained because nobody could ever work up much political enthusiasm for changing them.

Freedom of Choice: What Treasury experts want is to give business the right to choose faster depreciation than allowed by existing regulations. Theoretically, this doesn't mean tax relief for business. It doesn't mean taxes are excused, or that revenue to the Treasury will necessarily be less in the long run. The total deduction from taxable income is the same whether depreciation allowances are spread over five, 10, or 20 years. But accelerated depreciation does give a growing company a chance to spend more money for new equipment.

There's a wide range of changes possible:

- Most extreme would be to adopt the Swedish system of free depreciation—unlimited choice left up to the taxpayer. If he wants to, he can take the entire depreciation in one year—or he can stretch it out as long as he wants. There's not much argument in favor of this around Treasury; some estimate it could cost $4 billion in taxes the first year.
- Another approach is to allow a big first-year allowance—say 20%, as Great Britain does. The U.S. Chamber of Commerce has suggested this principle, too, but with a 25% first-year write-off.
- If the Treasury and Congress want to emphasize a new round of investment, they can do what Canada did back in 1944. Canada allowed businesses to double the normal write-off on any new projects completed within five years. Or, the special five-year amortization granted to U.S. defense industries since the Korean war could simply be applied to all industry, with a time limit to assure quick decisions. This approach, of course, would give no relief on property now in use.
- The Machinery & Allied Products Institute has long sponsored a formula that would allow a complete write-off in two-thirds the estimated life of the property. Under present Bureau of Internal Revenue rules, for example, much of the equipment used in chemical plants is given a 15-year useful life. This includes standard items like bucket elevators, conveyor belts, rotary kilns, and fans. Under present straight-line depreciation rules, if the amount deductible for tax purposes is $100,000, the annual allowance must be taken at $6,660/year for the full 15 years. Under the MAPI plan, the $100,000 could be taken in 10 years, at $10,000/year.

TREASURY'S FOLSOM: For growth industries, a good break at last?

Limit on Leeway: The internal revenue code merely calls for a "reasonable allowance for the exhaustion, wear and tear . . . of property used in trade or business." This concept also covers obsolescence.

Before the Treasury went on its revenue-hunting spree in 1934, this provision gave business considerable leeway. "Reasonable" was interpreted as being pretty much in accordance with general practice. On many standard machines, this was to take the write-off at 10%/year.

Then came the present system, culminating in BIR's bulletin F. It spells out in detail the useful life of machinery, equipment and buildings that business can use to figure depreciation. On many types of machinery once written off at 10%/year, the rate has been dropped to 6 and 7%. BIR denies bulletin F is a rigid set of formulas—but that's how business reads them. At least, the burden of proof is on any business that wants to deviate from the bulletin F rates.

Treasury can change the regulations the same way they were set up in the first place—by administrative rulings.

As things stand now, though, Treasury officials know the problem is a little more difficult to put over than it sounds. For one thing, they know that any important changes would have to get at least an informal okay from Congress—because they would result in a temporary reduction of revenue, even though—and it bears repeating—there is no loss to the Treasury in the long run.

Congress Is Willing: Also, they know a balanced budget comes first with President Eisenhower—and that at this point, any loss of revenue seems important.

However, just in case Congress decides to go its own way on taxes—as it threatens to do—Treasury officials are getting ready to head for the tax-writing committees with their bundle of depreciation ideas. They want to make sure they aren't overlooked if a real tax-changing measure should begin snowballing.

One argument they'll have ready is the impact of the changes on industry across the board—and particularly on chemicals, electronics and other growth industries that spark continuing expansion of the economy.

Up to now, Congress seems friendly. Rep. Daniel A. Reed, the House tax-writing boss, says the system of inflexible rules should be changed. His committee is going to study possible methods. Senator J. Allen Frear, Jr., has introduced a bill that would give business a choice of rates on new plant and equipment.

Companies that have already completed most of their presently planned expansion won't see too much cause for boundless joy in these prospects, with the whole subject of depreciation relief wrapped in question marks. But there's hope for future aid.

Specialization's Tug-of-War

With the chemical industry's dual cry —for more* and better chemical engineers—growing louder, CW made a nation-wide survey of colleges this week. Its purposes: to determine if college curricula are reflecting industry's demands; to see how far specialization has crept into chemical engineering courses; to find out if faculties think they are turning out the type of men demanded.

The answers, from chemical engineering colleges throughout the country, range widely in detail; basically they agree that employees would rather train a man with "broad fundamental background" than try to fit the specialist into his specialty.

Some schools, coining the axiom that curricula like time are always evolving, list their recent changes:

• Cornell's Chemical Engineering School notes three significant alterations, effective as of Sept. '53: reduction in the amount of time devoted to the laboratory courses in quantitative analysis, qualitative analysis, and organic chemistry; inclusion as a required course, chemical engineering economics; addition of a course in the basic principles of statistics.

All three were brought about as a result of circularization among alumni to determine where Cornell was failing its graduates—if in their experience there were fields of work not covered by the undergraduate course in engineering.

"Sudden changes—if real rather than publicity—usually indicate that a school has been asleep."

• Purdue has added three courses to fill gaps in technical training: chemical engineering thermodynamics, process kinetics, and advanced chemical engineering calculations.

• Princeton is currently involved in a series of revisions—all of which have not been finally approved. Statistics is being added to the technical calculations courses; and elective course is being offered in unit operations; and an elective in the theory of diffusional processes is being planned.

• The University of Illinois has offered an elective in bioengineering.

• Carnegie Institute of Technology has added a process laboratory course to its curriculum.

• The University of California is considering adding a second course in kinematics and also advanced courses in fluid mechanics and materials of construction.

"Specialization of engineering curriculum would surely be a step backwards educationally."

Other chemical engineering colleges say that although ordinarily the content of every course "is varied slightly term by term if the professor in charge is competent," the trend toward specialization has not yet crystallized. NYU's College of Engineering, for example, has been giving thought to increasing its offerings in the field of nuclear energy engineering, but as yet has not acted.

Still other engineering schools are firmly resisting the trend toward specialization. Their reasons:

• "We find that most students in chemical engineering do not know definitely the particular industry or company with which they will be associated later, and it seems to us to be a waste of time to try to specialize."

• "We realize that it is difficult for any university teacher to keep in extremely close touch with all of the developments in any one specialized industry."

• "The fundamentals of a good chemical engineering program, without attending to specialization, are more than adequate to occupy all the available time in undergraduate and graduate education."

". . . a real need for some further college training in economics and statistics."

• The chemical industry "which depends so largely on rapid development of wholly new products would defeat its own ends if it endeavored to foster narrow specialization as opposed to broad understanding and ability to draw on diverse fields."

Behind the Tug-of-War: Former graduates, faculty members (and in some cases employment directors) would seem to "appreciate greater specialization." Still greater numbers would "be favorable to specialization as to field, but not to industry."

Yet a hard core of resistance remains. One college asserts "employers more and more do not want specialization; particularly the more highly developed companies." Another boasts that "visiting employment directors commend us for our refusal to move toward greater specialization." And still a satisfied third points out that "the employment representatives appear to be satisfied with the extent of specialization now available."

Mutual Backslapping: Faculties appear in their own minds to be "in perfect accord" with the chemical industry, no matter which side of the fence they happen to be on. One would state that "it is our policy to make no changes that tend to produce specialization. Our own ideas and those of our friends in industry and the interviewers agree perfectly."

Another admits that pressure has been brought to bear from time to time to institute specialized sequences of courses in fields such as the chemical engineering of paints, rubber and petroleum. Its refusal to incorporate them, however, stems from the feeling that such specialization would be undesirable "in that we would be training students for jobs that they may take 10 or 20 years from now, rather than for immediate openings."

"The whole foundation of chemical engineering as a profession is an appreciation of the essential similarities in the engineering problems of the chemical industry."

Still a third states that its faculty strongly opposes specialization, "and the chemical industry is with us."

A fourth has curriculum changes under discussion with the full support of its staff, and feels that the chemical industry "is fully justified in seeking some relief from the general type of graduate now turned out by many engineering schools."

The question of greater specialization simmers down to a single point: what does the chemical industry really want? College curriculum committees think they know. But their impressions vary so widely, both in intent and application, as to be completely antithetical.

* The sellers' market for college seniors will be stronger than ever this year, with "prices" for them up an average of 5-8% according to the National Industrial Conference Board.

Atypical Chemists

Apparently imbued with notions derived from science fiction movies, Los Angeles residents had this reaction to the sight of delegates scurrying back and forth between outposts of last week's 123rd national meeting of the American Chemical Society: "They don't look like chemists!"

In The City of Our Lady the Queen of the Angels* for the occasion were 4,234 ACS members, their wives and guests, plus Southern California's much bragged-about weather. Delegates who were primed with choicest epigrams for the inevitable symposium on air pollution were left stranded; only an intermittent haze gave hint of the irritating smog that sometimes plagues Los Angeles in March.

WIDE WORLD

CALTECH'S DuBRIDGE: Washington's weakness, lack of scientific advisers.

As principal speaker, President Lee A. DuBridge of Cal. Inst. of Tech. scolded the U.S. for not making full use of its scientists and scientific facilities. Our federal government hasn't recognized the fact that science affects government, he averred; the new administration should make a point of elevating topflight scientists to topflight advisory positions.

Shortchanged on Research: With federal expenditures for research and devolopment up from $73 million to $1,250 million between 1940 and 1952, "we aren't getting our money's worth" on this outlay, said DuBridge. His suggestions for boosting the amount of successful research per dollar:

* A "substantial" increase in last year's $71-million allotment for basic research.

* Transfer of as many research facilities as possible from military direction to private management contracts.

* Use of leading scientists as Washington advisers and consultants.

Divisional papers and symposia reflected the Western setting of the synod. The Div. of Chemical Marketing & Economics—newest of the society's 21 divisions—held one symposium of the chemical resources on Idaho, Montana, New Mexico and Wyoming, another on the outlook for a textile industry in the West. Plastics and finishes for aircraft were subjects of discussion for the Div. of Paint, Plastics & Printing Inks, and the Div. of Petroleum Chemistry took up waste disposal problems of the petroleum industry.

Next gathering place for ACS regulars: Chicago, Sept. 6-11.

* Or, as its Spanish discoverers listed it on their map, "El Pueblo de Nuestra Senora la Reina de Los Angeles."

DPA's LATEST TAX WRITE-OFF LIST

Company, Location	Product	Amount Certified	% Certified
Esso Standard Oil Co., Bayway, N.J.	Methyl ethyl ketone	2,994,722	40
Hercules Powder Co., Hopewell, Va.	Carboxymethyl cellulose	1,865,408	50
Gustave T. Riech, Falling Creek, Va.	Glycerine	219,810	60
American Enka Corp., Enka, N.C.	Nylon	2,000,000	40
Merck & Co., Inc., Albany, Ga.	Sulfanilamide	858,290	45
F. S. Royster Guano Co., Jackson, Miss.	Sulfuric acid	458,000	45
Liquid Carbonic Corp., Chicago, Ill.	Oxygen and acetylene	222,750	45
Shell Chemical Corp., Houston, Tex.	Synthetic glycerine	9,000,000	60
Consolidated Chemical Industries, Inc., Houston, Tex.	Sulfuric acid	333,200	45

COMPANIES . . . .

Corporate finances stood in the limelight this week:

* Kaiser Aluminum & Chemical Corp. raised $12 million through sale to a 12-bank group of 3¾% promissory notes due Feb. 23, '54, and sold the second (and last) $14.5 million of 4½% mortgage bonds due 1976.

This brings Kaiser to the $29 million mark in bonds outstanding, and to over $200 million in funded debt.

* Union Dye and Chemical Corp. officials have approved a voluntary capital adjustment plan to clear arrears amounting to $35 a share on the company's 7% cumulative preferred stock. Plans call for transfer to each stockholder, for each share of preferred stock, $100 face value 6% debentures, due Aug. 1, '73, plus one fifth of a share of $1 par value common stock.

A substantial number of preferred stockholders are reported to be in accord with the plan.

* Union Sulphur & Oil Corp. has put on the market a $10-million issue of 4% debentures due 1978 and 101,000 shares of Class A nonvoting stock.

The debt securities will carry the benefit of a sinking fund starting in 1956, calculated to retire two-thirds of the issue before maturity.

Union is quoted as allocating proceeds of the debenture sale to repay $2.3 million of bank loans, for continued exploration and development of oil and gas properties, and for other corporate purposes.

•

Detroit Chemical Works, Detroit, Mich., walked off with RFC's biggest loan of the week ending March 12. To this $350,000 (at 5% for 10 years) Detroit Chemical is reported to be adding funds of its own with which to buy a 100-ton daily capacity contact-type sulfuric acid plant, at a cost of around $525,000.

EXPANSION. . . .

Styrene Monomer: The Foster-Grant Co. has decided to build its multi-million-dollar styrene monomer plant at Baton Rouge, La. instead of Orange, Tex. Reason for the switch: Foster-Grant's inability to obtain supplies of materials at Orange in time to meet production schedules.

•

Titanium: Crane Co. is reported to be looking for a site for a 6,000-ton/year titanium plant to cost around $20 million. One site, near Nashville, Tenn., is under consideration, but action by the Tennessee state legislature must precede operation by Crane. Financing plans are as yet incomplete.

•

Plastics: Construction on Du Pont's $10-million Mylar polyester plant at Circleville, O. has been started. Plans call for completion of the project by early 1955.

•

Dynel: Union Carbide & Carbon has declared it will definitely start construction, possibly by late summer, on a $30-million plant at Leakesville, N.C., to produce dynel fiber.

"Technical difficulties" with the fiber make up the only "roadblock," and the company has "absolutely no intention" of abandoning the project.

The site for the proposed plant was selected last year.

•

Tall Oil: Rust Engineering Co. won a $2.7-million contract for the con-

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U.S.I. CHEMICAL NEWS

March 28 ★ A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1953

U.S.I. Announces Booklet On High Surface Sodium

High Surface Sodium — an important new development in industrial use of metallic sodium — is the subject of a new booklet now available from U.S.I.

National Distillers Chemical, the division producing metallic sodium sold by U.S.I., has developed simple techniques for depositing colloidal films of sodium on inert, high surface area solids such as salt, soda ash, carbon, aluminia, and sand. The resulting sodium-coated particles are free-flowing, and, since the sodium has a high surface-to-weight ratio, it is immediately available for reaction.

Provides Many Advantages

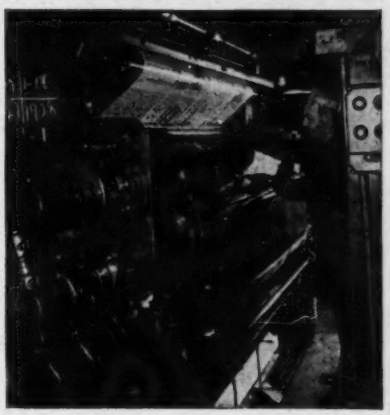
Used in this form, the complete and rapid reaction of sodium provides such advantages as easier reaction control, adaptation to continuous operation, dry-way reactions, safe operating procedures, and high yield. Research indicates that High Surface Sodium is useful in reducing metal salts and oxides to finely divided metals; in purifying gases, hydrocarbons and ethers; for preparing sodium hydride and sodamide for use *in situ;* and as a catalyst for hydrocarbon cracking, polymerizations, and rearrangement reactions.

National Distillers Chemical does not produce High Surface Sodium. However, technical assistance on the preparation and use of this form of sodium is available on request from U.S.I., as is the above booklet which covers the development of the process.

U.S.I.'s Ink Resin Research Continues to Pace Advances in High-Speed Printing Methods

Recent Developments Include New Phthalic, Non-Phthalic Alkyds; Hard Resins for Heat Dry Inks and Rotogravure; Others for Gloss Varnishes for Mixing, Overprinting, and Quick Set Inks

U.S.I.'s Printing Ink Resin Department recently reported a number of new developments which emphasize the company's continuing research program aimed at producing more and better resins for specific printing ink uses. Modern, high-speed printing processes are undergoing constant changes and improvements. As a result, there is a steady need for ink resins with special improved properties to allow ink makers to keep in step with the numerous advances in the art of printing. To this end, U.S.I. has for years maintained an active research program devoted entirely to the printing industry's requirements. U.S.I.'s ink resin line now covers almost every present-day printing need.



Research such as U.S.I.'s, leading to more and better resins, helps provide the printing industry with the special inks required by today's high-speed, precision methods.

New Arochem 533 Resin

One of the company's recent developments is its new, improved Arochem 533 — a hard resin for gloss mixing and overprint varnishes. It is easily soluble in 400° F. cooks in most oils, and it is equally useful in 585° F. cooks

MORE

IN MEMORIAM
Seton Porter, 1882-1953

Funeral services were held February 9th for Seton Porter, founder and Chairman of the Board of National Distillers Products Corporation.

Mr. Porter was a graduate of Yale University and subsequently was associated with the engineering firm, Sanderson & Porter. In 1924, he helped to found the National Distillers Products Corporation, serving as its first President until 1949 when he became Chairman of the Board.

His knowledge of industrial engineering and modern business methods contributed much to the progress of chemical, aviation, and motion picture concerns, and his loss will be keenly felt by all who were associated with him.

Uses for Curbay Products Seen Increasing

Molasses Stillage Products Derived from Alcohol Fermentations Useful as Foundry Binders, Coal Conditioners, Fermentation Aids

Industrial use of U.S.I.'s Curbay products — Curbay Binder, Curbay X, and Special Liquid Curbay — is on the increase, it was reported recently. Manufactured exclusively by U.S.I., these products are concentrated forms of molasses stillage obtained from alcohol fermentations. Industry has found them increasingly useful as binders for such materials as foundry cores, molds, briquetting compositions, case hardening compounds and abrasive compositions. Curbay X is a dried powder which contributes to improved efficiency of coal combustion, according to the report.

Foundry Aid

In foundry practice, the outstanding advantages of these products, as compared with such materials as molasses, are excellent mixing properties, non-fermenting characteristics, and economy. Special Liquid Curbay can be used very satisfactorily for spraying molds or cores to increase surface hardness, it is said, and Curbay X (Curbay Binder in dry form) can be used in sands for either air-dried or oven-dried cores and molds. Either of these products may also be used as a partial substitute for core oil in quantities depending on individual conditions.

Combustion Aid

Because of their reported catalytic action and favorable effects on coking properties, Curbay products can be used along with other materials to upgrade inferior type coals and to improve the condition of clinkers and ashes. Curbay products, when used along with other binders, are very desirable ingredients for specially formulated coal briquettes.

Fermentation Aid

Because of stimulatory effects of Curbay products in promoting microbial growth, they are finding large scale usage in composting and special antibiotic fermentations.

Special Uses

Due to the presence of natural gums from the original cane molasses, these products are useful in the manufacture of specialties wherein small additions improve colloidal dispersions ir emulsions, cements, flotation agents, catalysts, carriers, etc.

Further information on industrial uses of Curbay products may be obtained by writing U.S. Industrial Chemicals Co., Division of National Distillers Products Corporation, 120 Broadway, New York 5, N. Y.

New Painting Guide Offered

A quick reference index and guide to painting problems encountered in industry is now available in the form of a four-page folder, according to a recent announcement. Such maintenance problems as painting of metal for rust control, painting without odor, protection of concrete, and protection against chemicals and corrosion are covered.

CONTINUED

New Printing Ink Resins

to body oils. Its outstanding properties include high viscosity as dissolved, pale color, good drying, and scuff and scratch resistance with gloss.

Both this resin and Arochem 605 are suited for gloss oleoresinous varnishes and quick set ink varnishes made soluble by a small amount of strong solvent, drying oil, or U.S.I.'s Aroplaz printing ink alkyds. These two resins can be used with Arochem 534 or Arochem 359 as solubilizing resins. Gloss varnishes and quick set varnishes made with the above materials can be printed by letterpress or by lithographic processes.

Aroplaz 1271 Series Extended

Another recent development is the extension of the 1271 series of U.S.I.'s Aroplaz alkyds to make these resins available in a wider range of printing ink varnish bodies. Aroplaz alkyds are long oil, phthalic alkyds, designed for use alone or in combinations as vehicles particularly well suited to letterpress and litho uses. They can now be obtained in litho body numbers which include 00, 0, 1, 3, 5-6, and 8, all with 100 per cent solids content. Other U.S.I. alkyds are available in 100 per cent solids content of plastic body, and can be made in solutions of 70 to 90 per cent solids, dilutable with printing ink high boiling solvents.

Other recent developments in U.S.I.'s line of ink resins include new non-phthalic alkyds of litho varnish bodies including numbers 0, 1, 3, and 6, and an intaglio steel plate varnish alkyd, No. 00 body, which has good grinding, wiping, and drying properties for wet or dry paper.

Bromine Safety Outlined

Safety measures and regulations which should be followed in handling, storing, shipping and disposing of bromine are detailed in a new safety booklet. First aid measures and medical procedures in emergencies are included.

Find 'Serenades' Improve Many Chemical Reactions

"Sonochemistry", the science that deals with the chemical effects of sound waves, may one day furnish the means for homogenizing milk, sterilizing water supplies, and even doing the family laundry, all with sound, a meeting of chemists was told recently. Ultrasonic waves, it was explained, can be used to change various materials both chemically and physically. Examples of chemical reactions which can be induced include the formation of hydrogen peroxide from water containing dissolved oxygen, the formation of chlorine gas from carbon tetrachloride, and modification of chemical properties of plastics. Physical changes so far obtained with high intensity waves include the homogenization of milk, the mixing of paints, and even the suspension of mercury in water and oil, it was said. Laundering and sterilizing procedures are also possibilities.

New Surfactant for Paints Speeds Mixing of Pigments

A non-ionic surface active agent recently introduced on the market can save up to 50 per cent in time required to mix and disperse pigments in paints, enamels, printing inks, putty and caulking compounds, it is claimed. The product is an amber colored, free-flowing liquid which is soluble or miscible in most vehicles and thinners, including raw, bodied and blown oils, petroleum, aromatic, ester, and ketone type solvents, and phenolic, maleic and penta type varnishes and alkyds. When used in paints, it is said to retard hard settling, to control sagging and running, and to overcome silking and flooding. Because of the more thorough wetting and better dispersion that it provides, it tends to intensify and develop color strength and to increase the floss of films. The agent does not affect the viscosity or drying time of the finished product, and tests indicate it has no effect on the weathering characteristics of paint films, according to the manufacturer's announcement.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U. S. I.

To impart "glass-like" hardness to paint films, a new zirconium-based drier is available which is also claimed to improve gloss, reduce hazing, and to increase film adhesion without embrittlement. **(No. 900)**

An unusually tear-resistant base fabric for lightweight, waterproof goods is woven of flat, ribbon-like continuous multifilament yarns and can be combined with coatings of plastic and natural or synthetic rubber, the manufacturer states. **(No. 901)**

Push-button shoe shines are now available in the form of foam packaged in pressure cans. User turns the can upside down, releases a small mound of foam on the shoe, then buffs to a high polish. **(No. 902)**

New fluorescent chalks for lecture and classroom use are available in 5 brilliant colors, can be activated by black or blue light to add a new dimension for vivid color effects, according to the maker. **(No. 903)**

Rare wood grains and marbles are now reproduced in natural color on thin plastic film for application as veneer to wood, glass, metal, plastic, plaster, or composition. When dry, films can be varnished or waxed. **(No. 904)**

A sliding lubricant for windows, drawers, other wood and metal moving parts, is said to eliminate squeaking, to resist rust, corrosion, and wear, and to reduce friction. **(No. 905)**

Areas and volumes can be measured as easily as lengths, it is claimed, with a plastic template for scale drawings which performs basic functions of a slide rule, has no moving parts, and measures cylinders and circles as well as rectangles. **(No. 906)**

To bond vinyl plastics to themselves, and to wood, metal, glass, acrylic plastics, cloth, and many other materials, new adhesives are available which are claimed to require no heat or pressure, to penetrate surface quickly, and to have very fast initial tack or bond. **(No. 907)**

Chlorine concentrations of solutions can be determined on the spot with new tablets which, when dissolved in water, develop different colors with different strengths of chlorine. **(No. 908)**

Radiant heating panels of conductive rubber, for attachment to ceilings like wallpaper, are now available for supplementing heat in attics, garages, etc., or for adding radiant heat to a new room. **(No. 909)**

struction of a tall oil plant at Bay Minette, Ala., for Newport Industries, Pensacola, Fla. In addition to providing more capacity for products now manufactured, the plant will process raw material from kraft paper mills in the area.

•

Dyestuffs: National Aniline Division, Allied Chemical & Dye Corp., has commenced construction on a fourth dyestuffs manufacturing building, estimated to cost around $1.2 million.

Designed as a three-story structure, it will be used to produce basic intermediates in the manufacture of dyes.

•

Aluminum: Alcoa's aluminum reduction plant at Wenatchee, Wash., has reached full production with the placing in operation of its fourth potline. Rated capacity: 170 million lbs./year.

•

Aluminum: Approval has been granted by the Office of Defense Mobilization of a $66-million aluminum plant to be built at Mentor, Ky., by Kaiser Aluminum & Chemical Co. The grant includes a 50% fast write-off. Completion date of the project has not been determined.

•

Vital Metals: An experimental $100,000 plant for mining fissionable metals will be set up at St. Augustine, Fla., within the next three months by American Mining and Development Co.

Design and construction of the plant will be handled by the Carpco Engineering and Manufacturing Co., Jacksonville.

American Mining's lease on more than 100 miles of coastline in the area provides that Florida is to receive $1 a ton or 3% of the sales price of the minerals mined, whichever is greater.

Present plans indicate concentration on ilmenite, rutile, zircon, thorium, and uranium.

•

Foam Rubber: Dunlop Tire & Rubber Corp. has allocated $1.5 to increase production of foam rubber from the current 2.5 million lbs./year to 7 million. Installation of the new equipment will be completed by May of this year.

•

Vinyl Acetate: Celanese Corp of America plans to start producing vinyl acetate at the rate of several million pounds annually at its Pampa, Tex. plant. The new facilities are expected to come on stream during the third quarter of 1953.

•

Fertilizer: Stauffer has started construction of a plant to produce pelleted fertilizer at Tacoma, Wash. Using a process developed by Rumianca, Societa per Azioni of Turin, Italy, (*CW, Aug. 9, '52*), production is scheduled for completion late this year. Initial capacity: 25,000 tons/year, with provision for ready increase in the future.

LABOR. . . . . .

Dark Clouds, Loud Thunder: It looks like a long, raging storm, not just a spring squall, in labor-management relations these next few months, and the chemical process industries can expect their share of the foul weather. Here are some of the latest developments that can be interpreted as storm signals:

• Most open clash between union and management forces is in Washington, where Congress is getting ready to take up various proposals for changes in the country's basic law on this subject, the explosively controversial National Labor-Management Relations (Taft-Hartley) Act of 1947. While some congressmen and industry groups want to strengthen the present law, AFL insists that union-regulating features of the act be toned down by 20 "far-reaching modifications," and CIO demands that the T-H law be scrapped in favor of a new edition of the old Wagner act.

• Another conflict between union and management spokesmen is over the nation's Social Security system. The U.S. Chamber of Commerce, meeting in Chicago this week (March 27), is launching a campaign to extend coverage to all working and retired persons, would like to put the entire Social Security program on a pay-as-you-go basis. While labor likes the idea of universal coverage, AFL is hotly opposed to any departure from the present reserve system of financing, implies that the C. of C. is out to wreck Social Security by increasing its costs or decreasing its benefits.

• In the scramble between these two adversaries for public support, latest indication is that management has a slight edge. Out at Decatur, Ill., professors of the University of Illinois polled the citizenry and found that while 75% of the people questioned thought management leaders have community interests at heart, only 48% said the same for union leaders. Likewise, 69% thought management was making a real effort to "get along" with unions, but just 65% thought the unions were trying to achieve industrial peace.

•

Chemical Combats: Among current

labor-management friction in chemical process industries are these specific spats:

• NLRB has ruled that Commercial Chemical Co., Memphis, Tenn., must recognize the United Gas, Coke & Chemical Workers (CIO) as bargaining agent for its production and maintenance employees; and must cease interfering with its employees' right to organize.

• AFL Carpenters Local 2034 is asking NLRB for a rerun of last month's elections at the National Aniline Div. plant in Buffalo, N.Y., charging that the company tried to influence voting by posting a notice that a vote for "no union" would mean a vote to retain District 50 of the United Mine Workers as bargaining agent.

• Another NLRB complaint from Buffalo, filed by United Rubber Workers (CIO), alleges that Sterilon Corp. dismissed an employee because of union activities.

• In announcing a pay increase to chemists at its Jeffersonville, Ind., plant on the day before a plant election, Colgate-Palmolive-Peet did not commit an unfair labor practice, says NLRB. The board figures the boost conformed to Colgate's pay policy.

• Gas-Coke and the AFL Carpenters have NLRB's o.k. for holding an election at Delta Match Corp.'s plant in Kenner, La., despite the company's opposition. Delta argued against the election, claiming that fewer than 50% of its expected plant force (220 workers by December) are on the job and eligible to vote.

• A contractor on a housing project for Oak Ridge atom plant workers was ordered by a Tennessee court to fire 34 nonunion painters and rehire 34 union painters. The court ruled that the contractor violated his contract as well as state and national labor laws.

•

Head-on Collisions: As examples of direct economic warfare between unions and management affecting the chemical industry, these strikes are in the news:

• A plant that normally uses large quantities of chemicals, Canadian Copper Refineries, near Montreal, has been operating on reduced schedule since Nov. 19 because of a strike, begun last July 14, for recognition of the Oil Workers International Union (CIO) as bargaining agent. The strike has resulted in bloodshed, and strikers say they've been arrested and given the "third degree" by provincial police. Canadian Copper is a Phelps-Dodge subsidiary.

• At Elizabeth, La., where AFL

B&I . . . . . .

Sulfite Workers and Papermakers have been on a six-month strike against two paper mills, a local official says the situation "is verging on civil war" and demands that Gov. Kennon send in state police or National Guard troops to stop shootings and dynamitings.

•

More & More Gravy: Higher wages, greater fringe benefits stand out in many chemical labor news items this week.

• J. M. Huber Corp., New York, calculates that its 1952 payroll costs —including retirement plan and profit-sharing benefits, but not counting $102,800 in unemployment and old-age taxes paid by the company—averaged $5,300 for each of its more than 1,250 employees. Profit-sharing and retirement benefits totaled more than $1.2 million.

• At Bells Lane, Ky., an 11¢ wage increase retroactive to last Nov. 12 is forthcoming for B. F. Goodrich Chemical Co. employees, members of Synthetic Rubber Workers union.

• In its new union contract, along with a 7¢ wage rise for members of the AFL Chemical Workers, Western Electrochemical agrees to pay all costs of a hospital, medical and surgical plan.

• Wages at the Rohm & Haas plant will average more than $1.90/hour with a new 8¢ increase in effect for members of the CIO Glass, Ceramic & Silica Workers.

• A new contract between Colgate-Palmolive-Peet and the AFL Chemical Workers at Clarksville, Ind., includes a 9¢ wage boost and provision for two 15-minute "smoking breaks" each day.

• Lifting the wage ceilings brought about a 7¢ hike for 1,500 employees at Du Pont's neoprene plant in Louisville, Ky., and three months' retroactive pay for nearly 400 employees of the John A. Manning Paper Co. at Green Island, N.Y.

• Strategy planners for the United Rubber Workers (CIO) have decided to go out for "substantial" pay increases plus improved pension and insurance benefits in this year's negotiations.

Conclave at RPI

The chemical industry will play host to 850 high school and faculty members at the industrial conference to be held at Rensselaer Polytechnic Institute, May 15-16. Subjects for discussion: role of America's chemical industry in world economy, and defense programs of free nations.

DESIGN and PRODUCTION NEWS

FOR CHEMICAL ENGINEERS

Published by TECHNICAL SERVICE, Chemical Manufacturing Division, The M. W. KELLOGG Company MARCH 1953

Corrosives Handling Licked with new Drum Liners

Chemically inert drum liners made of Kel-F polymer film that will last indefinitely, are now making it possible to store or ship corrosive materials in ordinary steel or fibre drums, without contamination. Applications are virtually unlimited since the fluorocarbon material effectively resists dilute and concentrated mineral acids (including fuming nitric, aqua regia), alkalis, corrosive solids and pastes. (And, liners can be made in any size and shape.)

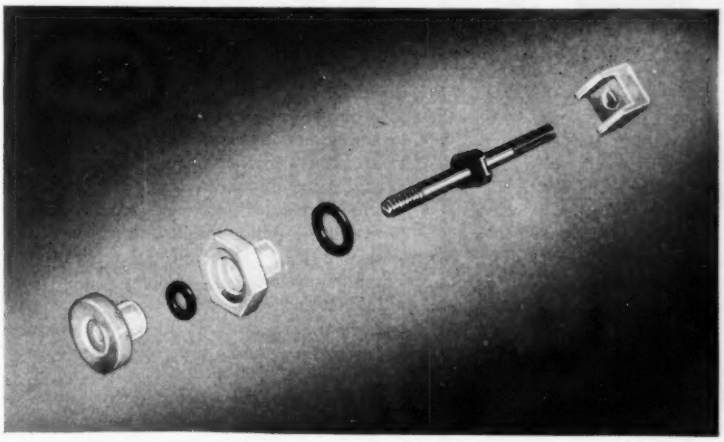
Electronic Wave Products, Inc. of New York, N.Y. uses .005 film extruded from Kel-F and an exclusive electronic seam-sealing process to produce the liners—at the present for 5, 15, and 55 gallon drums. Kellogg's fluoro-chloro-carbon plastic, Kel-F,

was chosen for this purpose because of its chemical inertness at high and low temperatures . . . toughness and ability to withstand hydraulic shock . . . it will not stick to the container, nor will the contents stick to it . . . continuous reuse and aging will not embrittle it . . . banding and tying will not damage it . . . electronically sealed seams will not give way.

Initial cost of the liners is higher than that of glass vessels, but their obvious advantage of lightness and unbreakability results in a cost advantage in shipping. They permit use of uniform drums for efficient stacking. Compared with alloy steel drums ordinarily used in handling fuming nitric acid, a liner made of Kel-F costs but a fraction, and its long life, without contaminating the product, gives it a decided advantage.

Available only in liners of the "peel over" and "tie off" types at the present time, other types, with flexible and rigid spouts are planned.

Refer to Report C 101



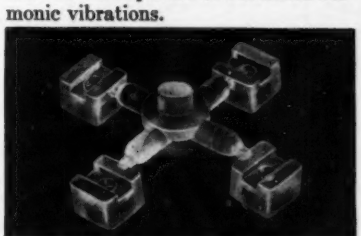
Aircraft Instrument Requires Corrosion Resistance, Stability under Harmonic Vibration

. . . and less than 10,000 Megohm Leakage!

Only KEL-F *Qualified! Rigid Air Force requirements for the fuel indicator part shown here could only be met by Kel-F polymers because of their unique combination of properties. Tough operating conditions eliminated all other materials.

Specs for the instrument prohibited "cold flow". The part was to be in constant contact with corrosive fuels, hydraulic-type and other test fluids at low and high temperatures. Stability under severe harmonic vibration and no permissible moisture absorption were additional limitations.

The high dielectric strength of Kel-F over a wide temperature range satisfied the minimum leakage requirement. Its unique chemical composition, responsible for both its superior chemical inertness and its low "cold flow", assured dependable operation of the indicator in spite of temperature fluctuations or contact with corrosive liquids. The proven zero moisture absorption of the fluoro-chloro-carbon plastic precluded any trouble from water absorption or fungus accumulations. The toughness, lack of brittleness, over a wide temperature range permitted the parts made of Kel-F to remain unaffected after exposure to sustained harmonic vibrations.



Typical component parts as injection molded

Brilhart Plastics Corporation of Mineola, N.Y., acquainted with the ready moldability of Kel-F, injection molded the indicated parts to the exact tolerances required in the specifications. Design of their molds and the excellent thermoplastic characteristics of Kel-F polymers resulted in molded parts which required no finishing or machining prior to use.

Refer to Report C 102

For complete information regarding any item mentioned in DESIGN AND PRODUCTION NEWS, ask for detailed APPLICATION REPORTS, write

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How to Live With Your Scientists

Much has been said, and more has been written, about the chemical industry's shortage of professional manpower. Peter Drucker's* contention is that the situation will persist "for years to come."

Coldly examining why technical shortages have reached such a critical point in the U.S. is one way of attacking the problem, says Drucker. He holds that Korea and our defense requirements are really minor causes, sees the real stumbling block in the paradox that the chemical industry has mushroomed at a time when the low birth rate of the '30s has affected college enrollments.

The irony of the situation lies in industry's waste of this "high-grade, expensive, and scarce human resource."

Difference in Attitude: But actually management is only partly to blame for the prodigality, in so far as it hasn't been made aware that a real problem exists. The trouble really lies in the basic difference in attitudes between professionals and the rest of the business organization. It breaks down into three main qualities:

- Objectivity is an "essence of the professional mind." Its very value to the company springs from that objectivity.
- Working habits are ingrained in the technically trained man. He has been carefully nurtured to work on his own. Researchers, particularly, have had drummed into them the need of personally checking all data.

The professional can work as a member of a team, but does not usually take kindly to "organization"—especially big-scale variety. In his field he is likely to insist on absolute control of the job at hand.

- "Logic" doesn't mean the same thing to the professional man and the business man.

To make a solution more difficult, each of the traits is desirable despite the difficulties they cause. The trick is to find out how to use them effectively as they are. Drucker's system is to isolate as many friction points as possible, and then smooth them down, thus achieving "less trouble, greater efficiency."

Palliative—Not Cure: Most generally, sore points encountered fall into four groups:

- Being "administered" is hard for many professionals to stomach; and

DRUCKER: ". . . in a professional group, leadership is . . . very different."

usually, management is blind to the difficulty. It applies supervision to professionals because it is the "thing to do." But professionals resent it, and it is bad for their efficiency.

The other side of the coin is promotion by management of the man in the professional work group "for whose professional abilities his fellow workers have little respect." The rule of thumb in industry today is that the better a man is in his profession, the poorer administrator he is likely to be. Management only sees the latter trait and skips him by.

- Closely linked is the technically trained man's dissatisfaction with his lack of professional recognition. This unrest creates a dilemma: to promote the professional who stands at the top of his fellow workers' list is "to destroy him and his job." But not to promote him breeds discontent.
- The kind of work expected by management from the professional and how it is assigned is another bone of contention. The question usually resolves itself into a choice—whether it is of prime importance to solve the immediate problem ("glorified repairmen") or tackle a basic research project. And the choice, especially in small companies, must be weighted by the fact that the professional's job is bound up in the success of his company.
- And lastly, superimposed personnel administration galls most professionals. Direct responsibility to work out his own group's personnel practices helps to raise his own status. It

* Former newspaperman, foreign correspondent, international banker, now college professor, management consultant on problems of organization and human relations.

•Davison Bulletin•

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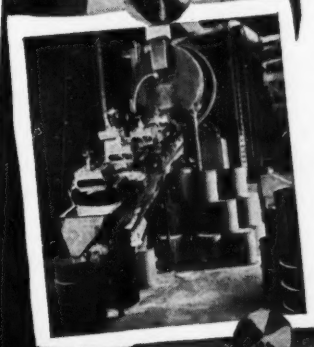
AVAILABLE FOR THE FIRST TIME

Organic Silicofluorides



Davison's Research and Development Department has devised a method of commercially producing a series of silicofluorides which have previously been known only as laboratory curiosities. Now available:

Methylamine Silicofluoride ($C_7H_{12}N_2SiF_6$)
Dibutylamine Silicofluoride ($C_{16}H_{40}N_2SiF_6$)
Ethylhexylamine Silicofluoride ($C_{32}H_{72}N_2SiF_6$)
Aniline Silicofluoride ($C_{12}H_{14}N_2SiF_6$)
Rosin Amine Silicofluoride ($C_{16}H_{16}N_2SiF_6$)
Morpholine Silicofluoride ($C_8H_{20}N_2O_2SiF_6$)

Preliminary use research has led Davison's technical representatives to believe that there are many varied applications for these products.

The properties of the materials vary widely. The molecular weight is from 206 to 719; fluorine content 18.2% to 55.17% and pH in 5% water solution, 2.8 to 4.2.

For full chemical and physical properties write for Product Data Sheet on Davison's Organic Silicofluorides, today.

Anti-Blocking Agent

Davison now has available a series of high quality, uniform fine sized silicas. The amorphous form of silica possesses unique characteristics when compared to crystalline silicas, e.g. sand. Silica gel, a highly porous form of amorphous silica, characteristically has a large pore volume and surface area. For example, when divided into fine particles less than 20 microns, the porous high surface area characteristics continue to exist, making the product specific for a wide variety of special applications. The product is white in appearance and completely uniform in chemical and physical characteristics.

Commercial forms of silica gel available differ primarily in pore size, surface area, and apparent bulk density. These differences, in addition to the variations produced by surface treatments and particle sizing, have resulted in a series of finely divided silicas adaptable to diversified uses. Many of these grades are now available for anti-blocking and matting plastic sheeting.

Mail coupon for complete information, chemical and physical characteristics, and suggested applications, or contact your Davison Field Service Engineer.

FREE Literature Available On Method Of Determining Fluid Catalyst Particle Size

An analytical method for ascertaining the size distribution of either a fresh or used catalyst developed specifically to serve requirements of the industry. For your free copy, use the coupon.

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is often more complicated to do it that way—not always "better" than the expert's, but it is "his own."

What Management Can Do: Drucker suggests a few lines for management's attention:

- On the one hand, management could consider further professionalization of the professional. But in so doing, it runs the risk of further isolating him from the business as a whole.
- The technically trained man feels himself to be a part of management ("and rightly so"), and it is important to his morale to understand something of the whys and hows of the company as a whole. Therefore, a possible means to reconcile him is to rotate him through various departments before dropping him into his niche.

The value of such rotation is questionable, however. Generally, the good evolved is not lasting, breeds impatience and intolerance. An alternate method is to rotate seniors—encouraging them to help make decisions of long-term policies and production programs.

- Formal communication with professional in terms of company reports, informative letters are beneficial. And making opportunities for them to ask questions and receive long, frank replies calms troubled waters.
- Better still is for management to convince itself of the value of using professionals in professional work. By eliminating unnecessary chores, by turning semi-skilled work over to the technician, and by relieving his chemists and chemical engineers of humdrum work, it can raise morale, bolster efficiency.

LEGAL . . . . . .

Sulfurous Fury: Heat of American Sulphur & Refining's current anger at Pacific Foundry and Pan Pacific Sulphur can be gauged by the Los Angeles firm's $1.6-million lawsuit in the Superior Court of California against those two companies and several of their executives. American Sulphur says that some years ago it engaged Pacific Foundry to build a pair of sulfur recovery pilot plants in San Francisco. Later, according to the complaint, Pacific Foundry applied for U.S. patents on a sulfur extraction process that had been developed by American Sulphur. Pacific Foundry is accused of "fraudulent confiscation of confidential plans and specifications accruing from costly investigation" by the plaintiff concern.

•

Fair Trade Recess: Unless and until its legislature re-enacts a fair-trade law, Georgia will be one of the few

states in which fair trading is not recognized by law. Georgia's supreme court has ruled that the state's 1937 fair-trade act is not valid because it was not in agreement with Federal law (Sherman Act) when the state bill was passed. Federal law on this subject was amended last year to permit fair-trading in states that want it.

•

Product Liability: Two manufacturers—one of drugs, one of cosmetics—are in court this week as defendants in suits based on deaths allegedly caused by use of their products.

• In Los Angeles, four couples are suing Parke, Davis & Co. of Detroit for a total of $332,063, contending that the use of that company's chloromycetin caused the deaths of their children the past year. Their complaints assert that the antibiotic caused anemia, that the drug containers did not bear proper warnings.

• In Rennes, France, a chemist who had been producing a brand of baby powder at a factory in Bordeaux is to be tried for manslaughter on the charge that his product—which reportedly had a high arsenic content—had killed 152 babies and made 752 others seriously ill in western France last year.

•

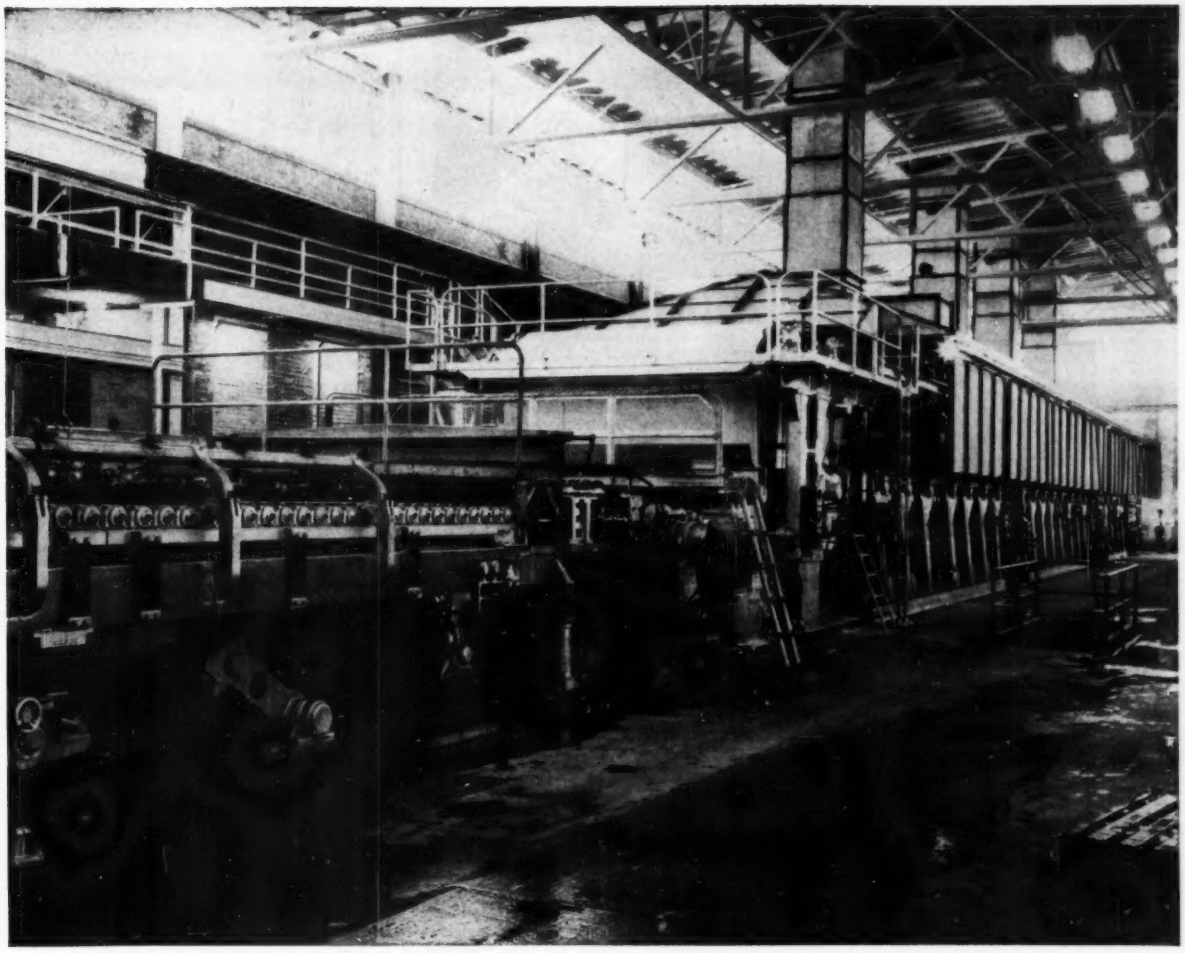
Fire No Excuse: Common pleas court in Detroit has ruled that Chemical Specialties, Inc. must pay the full $5,000 for which it contracted to buy an antitrust formula for chromium from chemist Fred E. Seuffert. The company admitted the agreement, but said it had never made the product because fire destroyed the Pennsylvania plant supplying one of the ingredients.

Tenacious Defense

At about the halfway point in their side of the Du Pont-General Motors civil antitrust trial in Chicago, the defendants are sticking steadfastly to their claim that Du Pont, despite its heavy holding of General Motors stock, did not keep GM fenced in as a "slave customer" for Du Pont products.

Amid indications that the government's prosecuting vigor has dwindled, star defense witnesses Pierre du Pont, Irenee du Pont and Alfred P. Sloan, Jr., have testified that the Du Pont company confined itself to voting at stockholders' meetings, left GM officials free to buy from whatever suppliers they preferred.

Still to be heard from as witnesses for the defendants: John Pratt, GM director who first worked for Du Pont, then headed GM's centralized purchasing committee; Charles F. Ketter-



Without This Machine Your Business Couldn't Operate!

You've probably never given a moment's thought to the product manufactured by this giant machine. Yet without its product, businesses all over America might grind to a slow halt. Why? Because its product is the life blood of American business and industry: bond paper!

Can you imagine a business operated without paper? No paper to write orders on . . . no paper to keep records on . . . no paper to send out bills . . . no paper for correspondence. Yes, it would be pretty tough for any business to operate long without paper.

And it would be equally difficult for this machine to operate without chemicals. Because Spencer Chemical Company supplies an ever-increasing amount of commercial grade anhydrous ammonia to paper mills who use the revolutionary ammonium bisulfite process, every new development in this field is watched with interest.

With the completion in 1953 of new works now under construction, Spencer will be in a position to furnish ammonia to a number of additional mills planning to go over to the ammonium bisulfite process.

SPENCER PRODUCTS: Methanol • Formaldehyde • 83% Ammonium Nitrate Solution • SPENSOL (Spencer Nitrogen Solutions) • Ammonium Nitrate Fertilizer • FREZALL (Spencer Dry Ice) • Liquid Carbon Dioxide.

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Executive and Sales Offices, Dwight Bldg., Kansas City, Mo. Works: Pittsburg, Kan., Henderson, Ky., Chicago, Ill., Charlestown, Ind., and Vicksburg, Miss. (Under construction.)

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ing, GM's noted researcher; and Charles E. Wilson, ex-president of GM and now U.S. Secretary of Defense.

One piece of solidly factual evidence: a confidential discount plan, in use during 1926, setting a schedule of rebates for GM on purchases from Du Pont ($75,000 on annual purchases totaling $9 million, $450,000 if the total were $12 million). Government Attorney Ewart Harris sought to picture this as a Du Pont-GM "family scheme," but James Lynah, who served as secretary of the GM purchasing committee during the 1920's, contended that this plan paralleled contracts with other suppliers, most of whom gave GM favorable discounts because of the volume of the purchases.

FOREIGN . . . . .

Polythene/France: According to *Die Chemische Industrie*, Düsseldorf, Ethylene-Plastique S.A.'s polythene plant at Mazingarbe, now under construction, should be in operation by the last quarter of this year. Estimated output: 2,000 tons in 1954. The company, founded last year by the Houilleries du Nord et Pas-de-Calais, the Pechiney and Huiles, and the Goudrons et Dérivés, Ethylene-Plastique will be operating under I.C.I. license.

•

Penicillin/Brazil: Companhia Quimica Rhodia Brasileira has opened a penicillin plant at Santo Andre in Sao Paulo, said to be the largest in South America.

The brand-new $2 million plant is expected to turn out one trillion units of penicillin per month, approximately two-thirds of Brazil's consumption in 1952.

•

Fertilizers/Italy: The Società Industrie Chimiche Sintetiche is reported to have received approval for the erection of a fertilizer plant at S. Giovanni in Valdarno. Initial products: synthetic ammonia and its by-products. Completion date: 1954.

•

Petroleum/Italy: The Azienda Nazionale Idrogenazioni Combustibili (ANIC) is seeking government authority to erect a petroleum chemicals plant at Leghorn. Raw material will be olefins from Italian oil refineries.

•

Fungicides/France: The Société Prochinor is now manufacturing at its plant in Feuchy the fungicide Dithane Z 78 under a 10-year license from Rohm & Haas Co.

•

Cellulose/Chile: A cellulose plant with an estimated annual production capacity of 47,500 tons, and a newsprint

B&I . . . . . .

plant with a capacity of 45,000 tons are on the planning boards in Chile. Both plants will be located in the Concepción district. Cost of the complete project will be $20,000 (already solicited as a loan from the International Bank) and 300 million Chilean pesos.

Many New Faces

Still about twice as stable as the rest of American industry, employment in the making of chemicals and allied products took a restless turn in January, according to latest Labor Department figures. Chemical employees' turnover continues to be among the lowest in the nation, despite the abrupt rise in January. Hiring jumped by 53% over the December level, and separations rose by 60%. For the chemical processing industries, hiring stood at 2.3 persons per hundred employees and separations averaged 2.4 per 100; for all manufacturing industries, 4.4 and 3.8 were the corresponding figures.

With new plants opening all over the map as the expansion program comes to fulfillment, chemical employment should be rising steadily all this year. One indication of this upswing is a recent Louisville, Ky., newspaper ad by B. F. Goodrich Chemical Co.:

"Chemical jobs open. Production men wanted for permanent positions in chemical operations on rotating 8-hour shifts. Attractive starting wages with opportunity for advancement. No previous experience necessary; some high school education required."

Also in the market for chemical workers in Kentucky is Carbide & Carbon Chemicals, operating the gaseous diffusion plant at Paducah for the U. S. Atomic Energy Commission. Present employment is a bit more than 1,600, and the full plant force is expected to exceed 2,500.

KEY CHANGES . . .

Alan T. Knight: To executive vice-president, Catalytic Construction Co., Philadelphia, Pa.

R. Wolcott Hooker: To vice-president, Hooker Electrochemical Co., Niagara Falls, N.Y.

William Rodgers: To general sales manager, Blaw-Knox Co., Pittsburgh, Pa.

Albert H. Clem: To general sales manager, Pennsylvania Salt Manufacturing Co., Philadelphia, Pa.

Frank B. Ralston: To purchasing agent, Carlisle Chemical Works, Inc., Reading O.

DETACHED from the supercharged domain of claims for mildness, coolness, taste and aftertaste, there's a quiet corner where cigarette companies do research. It's not the kind of research that turns up remarkable new products. And, to be frank, it hasn't proved absolutely essential to the growth or competitive advantage of any brand of cigarette.

Yet, tobacco research has a reason for existence; and a valid one, at that. In its many forms, it is variously concerned with tobacco aging, development of new tobacco varieties, composition and flavor of the smoke, handling and processing machinery, packaging problems, etc. But, in the last analysis, the job of the tobacco researcher is to supplement with science the sensory methods of evaluation based on generations of accumulated experience.

In practical terms, it comes down to

HUMAN SMOKER is final judge of cigarette quality. Here at American Tobacco Co., taste panel passes on factory-made test cigarettes.

Supplementing the Senses

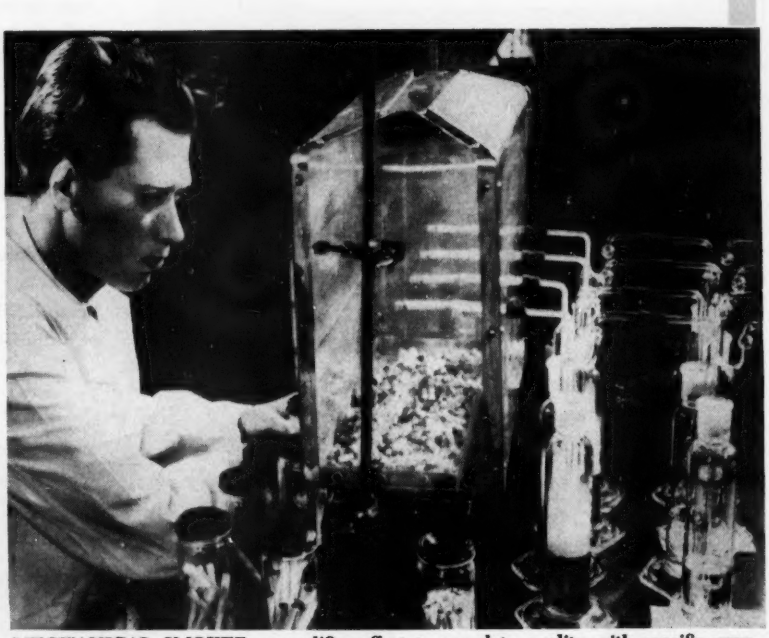
finding the answers to questions like:

- What chemical components of cigarette smoke influence mildness, taste, irritation?
- How much of each is present in the smoke, and how individual components contribute to the sensory effect?
- What factors, other than the composition of tobacco, influence the character of the smoke?
- In which ways is the chemical composition of tobacco altered by growth practices, processing conditions and combustion?

The jackpot question, obviously, is: How can all the variables be consistently controlled for maximum quality?

In their effort to come up with the answer, researchers have had to start from scratch, determine which physical and chemical properties are most important to quality, devise techniques for pinpointing and controlling these variables.

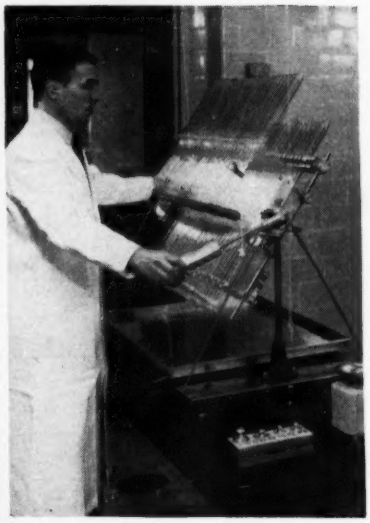
Scope of activity it calls for is well defined by American Tobacco Co., a pioneer in tobacco smoke research: "Research runs the gamut from seed bed to cigarette, involves comparison of new versus old varieties of tobacco, studies concerning the influence of fertilization and other cultural practices, investigation and elucidation of the principles of blending, processing to improve quality and inauguration of technological control throughout the manifold operations in manufacture and packaging."



MECHANICAL SMOKER exemplifies effort to correlate quality with specific properties. This Lorillard model is drawing smoke for analysis.

To implement a program of such generous proportions and unique demands, tobacco scientists have collaborated with state and federal agricultural experiment stations, developed their own procedures and equipment (like the smoking machine), and tried to educate the farmer in sound crop practices.

In an industry where advertising

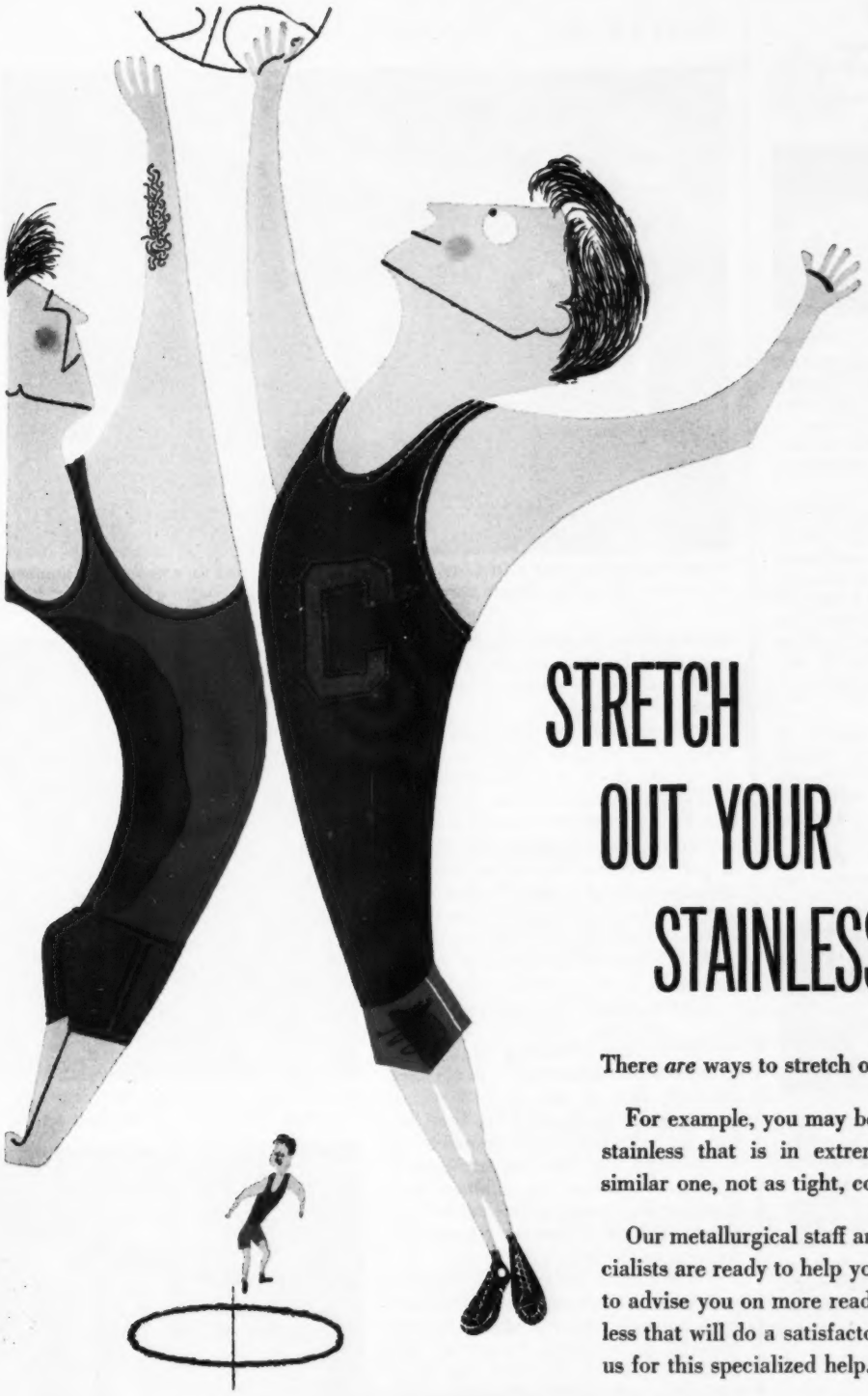


EXTRACTION in counter-current apparatus is familiar procedure at Reynolds.

is king, research can at best be a minor functionary. The tobacco industry is the classic illustration. The "big five" all maintain laboratories: American Tobacco Co. and Philip Morris & Co., Ltd., Inc. at Richmond, Va.; R. J. Reynolds Tobacco Co. at Winston-Salem, N. C.; Liggett and Myers Tobacco Co. at Durham, N. C.; and P. Lorillard Co. at Jersey City, N. J. But their research expenditures are dwarfed by advertising budgets. And, with notable exceptions, research divisions are staffed by a mere handful of chemists, biologists and engineers.

To be sure, research expenditures could get up into very substantial figures and still pale by comparison with tobacco ad budgets. But in the past, at least, cigarette companies just

KJELDAHL gives Lorillard researcher a line on nitrogen in leaf samples.



STRETCH OUT YOUR STAINLESS, TOO

There *are* ways to stretch out your supply of stainless.

For example, you may be using a grade or finish of stainless that is in extreme demand when another similar one, not as tight, could do the job adequately.

Our metallurgical staff and stainless fabricating specialists are ready to help you look into this matter and to advise you on more readily-available types of stainless that will do a satisfactory job. Feel free to call on us for this specialized help.

CRUCIBLE first name in special purpose steels

53 *years of* Fine *steelmaking*

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REZISTAL STAINLESS • REX HIGH SPEED • TOOL • ALLOY • MACHINERY • SPECIAL PURPOSE STEELS

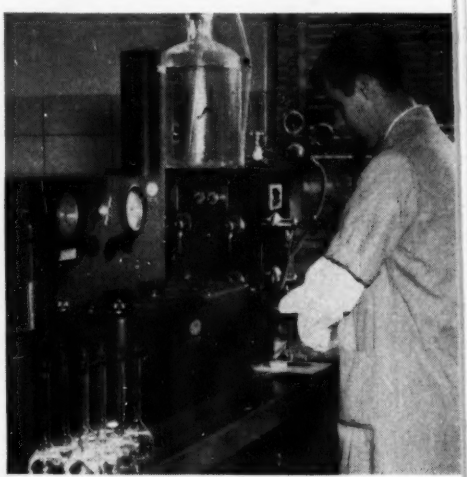
CHROMATOGRAPHY COLUMN (left) is indispensable tool for separating a number of products of aging reaction carried out on test leaf.

haven't been disposed to laying out very much for research. From the look of things now, however, they've had cause to reconsider.

Striking proof of the growing importance of research is the brand-new, $2-million R. J. Reynolds laboratory building at Winston-Salem, N. C. Fostered by post-World War II research expansion, the Reynolds center is the largest of its kind in the industry. On the same path, but on a smaller scale, Philip Morris & Co. has shaken up its research leadership, is now expanding staff, laboratories and areas of investigation.

What's behind this build-up in tobacco product research? Problems posed by the increasing application of agricultural insecticides, fungicides, etc., are part of the story. Growing popularity of innovations like the filter tip also has sparked new research activity. And the tobacco companies' traditional concern for mildness and irritation has been heightened by implied (though unproved) threats of tobacco to the health.

Then, there's the constant effort to pare costs. In an operation as mechanized as cigarette manufacture, raw material savings and by-product recovery probably represent the most promising ground for effecting major economies. Marketable chemicals from waste tobacco is, of course, a long-standing goal. Also getting some hard consideration is a process for reconstituting process waste. Appeal: finely divided waste tobacco (worth about 1¢/lb.) is formed with the aid of special adhesives (*e.g.*, ethyl cellulose) into sheets (worth about $1/lb.) that can be shredded for use in cigarettes.



FLAME PHOTOMETER spots minerals that affect combustion, smoke taste.

SOXHLET apparatus extracts aromatics, important flavor ingredients.

BUY POLYOLS ON FACTS

Sorbitol has a pleasant taste . . . no color or odor

Sorbitol is uniformly free of undesirable tastes, colors and odors. This characteristic is especially important if you're using a polyol in elixirs, mouthwashes, toothpaste, candy, cosmetic creams or lotions. Sorbitol's natural sweet cool taste makes a valuable *plus* feature in addition to its inherently superior properties as a moisture-conditioner and bodying agent. And there's no color or odor to affect your blend of other ingredients . . . nothing about sorbitol that needs to be removed or masked.

...and sorbitol costs less today than ever

Sorbitol has dropped steadily in price . . . in war, peace and during times of inflation. This has been due to sorbitol's low-cost, practically unlimited raw material (mostly corn sugar) . . . and to continued expansion and refinement of the Atlas process.

COMPARE ALL POLYOLS

before you buy . . . and choose the one that proves superior on every count. To help you utilize sorbitol's unique characteristics in your product, Atlas offers full technical information and research service.

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Write for the free booklet, "The Sorbitol Story," which highlights the reasons why sorbitol is a better product at a lower price.

COPOLYMER'S HULINGS: With a jet nozzle, a jolt throughout.

Jet Boost for Black

One answer to the rubber industry's carbon black dispersion problems came on the ides of March from Baton Rouge, La. There, synthetic rubber producing Copolymer Corp. unveiled its steam jet process for mixing "black" and latex.

Key to the new method is a three-way jet-like fitting that may be adapted to the feed lines of existing GR-S plants.

Briefly, here's how it works. The jet nozzle, now under pilot-plant scrutiny at the government's Baton Rouge synthetic plant, has three apertures: one for latex; another for carbon black slurry; and the third for high-pressure steam, which activates the mixing and is applied—in Copolymer's words—"to actually jolt the slurry throughout the latex."

Advantages of the new process aid are reported to be twofold. Col. C. M. Hulings, Copolymer's operating v.-p., says the method results in a tougher rubber "than any yet produced," at a reduction in both initial and processing costs.

Backing for these claims is based on the outcome of 18,000-mile, round-the-clock, Texas road tests. According to preliminary findings, jet GR-S showed a 20% improvement in tread wear. On the manufacturing side, the steam jet technique obviates wetting agents needed in present "black" masterbatch production, gives a rubber that requires smaller amounts of vulcanizing chemicals than does ordinary cold GR-S.

A feather in Copolymer's cap, the new steam jet process will (if it proves out) work to the advantage of the entire rubber-producing community.

PRODUCTION....

Small Plants

Average salary $11,000

(less than 100 employees)

62.5% were average—
of whom
55% thought they were average
35% thought they were superior
10% thought they were below average

26.5% were below average—
of whom
88% thought they were average
12% thought they were below average

11% were superior—
of whom
85% thought they were average
13% thought they were superior
2% thought they were below average

Medium Plants

Average salary $14,000

(100-500 employees)

58% were average—
of whom
80% thought they were average
18% thought they were superior
2% thought they were below average

23% were superior—
of whom
50% thought they were superior
26% thought they were average
24% thought they were below average

19% were below average—
of whom
82% thought they were average
14% thought they were below average
4% thought they were superior

(Continued on Pg 46)

On the Average

The "average" plant manager in the chemical industries, like the "average" individual in any given category, is nonexistent. This fact was pointed up by a Chemical Week survey of representative plant managers completed last week.

But though no single respondent answered the description of "average," over 50% of them fit over 90% of a description that looks like this:

He has passed his 35th birthday but has not reached his 55th, has a bachelor's degree in chemistry or chemical engineering and considers technical ability an important asset to him in his job. But he thinks that administrative talents and a flair for handling people are just as—or more—important.

Native collecting natural gum in Sudan, Africa

Natural Gum Properties

...in the range you want ...at lower cost

Nu-Film carbohydrate derivatives give you hydrating capacity, clarity and stability. Grades are available which won't gel or set up. Pastes stay smooth. They can be cooked in concentrations ranging from 1.5% to 20%, depending upon the particular grade.

Nu-Film derivatives also bring you savings because of their low cost and ease of cooking. They swell rapidly at low temperatures, usually without need for high speed agitation. No lumping difficulties.

For further information on NU-FILM properties and applications, mail the coupon.

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Textile Warp Sizing

Leather Pasting • Finger Paint

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National STARCH PRODUCTS

270 Madison Avenue
New York 16, N. Y.

(500 employees) **Big Plants**
Average salary $21,000

48% were average—
of whom
55% thought they were average
40% thought they were below average
5% thought they were superior

34% were superior—
of whom
60% thought they were average
40% thought they were superior

18% were below average—
of whom
68% thought they were average
23% thought they were below average
9% thought they were superior

Earning somewhere between $10,000 and $50,000 a year, he's well paid. On the whole, he thinks this is a fair remuneration compared to that received by men in similar capacities in his industry. And as a plant manager in the process industries, he thinks he may be taking home a little more money than a plant manager in other manufacturing industries. He does think, however, that he might be doing even better if he had devoted his time and energies to another profession, like medicine or law.

Proving the Rule: His exact salary within the range, of course, depends on a number of variables. But surprisingly enough there is no correlation between his pay and his age or time on the job. Nor is there any between his pay and his education, with this exception: the manager in the small minority who did not graduate from college makes, on the average, less than his counterparts with degrees.

Other variables that unquestionably affect salaries include the location of the plant, the nature of the operation and the over-all company policy both on pay and authority delegated to the head of the plant. These, however, are difficult to measure, were intentionally ignored in the survey.

Instead, the queries concentrated on an effort to correlate the number of people employed in the plant with the salary of the plant manager. The clear-cut pattern that emerges shows that the more people he has working in his plant, the bigger is his salary (see box for results).

Secret to Success: What makes the plant manager tick? Only 4% rate technical ability as important to them in their work as administrative ability. The remainder are equally divided, half thinking administrative ability more important, half thinking both equally important. (One volunteered a breakdown of his job as 60% administration, 40% technical.)

Perhaps a better insight into the question can be gleaned from answers to the question, "For a person just starting out and aiming for a position like yours, what sort of education would you recommend he pursue?" The overwhelming majority suggest he should get a degree in science (most specified chemical engineering), then top it off with as many courses in business administration, labor and human relations as possible.

Suggestions for experience for the same individual, however, covered the spectrum. But in general there were two schools of thought: one said he should get as much solid experience in the plant as possible; the other said it is more important to get diversified experience in all phases of a chemical operation.

Personnel Problems. Apparently the common denominator for the men who run the chemical plants is their pattern of worry. By far the biggest majority agreed that their biggest problem today is personnel. Many complained of the difficulty of getting trained workers, some of training workers to assume more responsibility, and others of a lack of cooperation at varying levels.

One plant manager covered a multitude of personnel worries when he said: "My present biggest problem is how to keep everyone happy."

Two in One

Multiply the density of a liquid by its volumetric rate of flow and you get the mass rate of flow. That's the simple principle on which Gavco Corp. built the integrated mass flowmeter it introduced last week.

Numerous meters now on the market give an accurate reading of the volumetric rate of flow. But this hasn't been true for mass flowmeters. Last year (*CW, Dec. 27, '52*) Control Engineering Corp. (Norwood, Mass.) caused a stir by bringing out an instrument aimed at giving the true mass rate of flow. Now comes Gavco with a similar instrument based on an entirely different principle.*

Flying First: Gavco developed its meter with an eye toward the aviation industry. Its value in aircraft—particularly in jets—is fairly obvious since the engines are more interested in pounds than gallons. But applications elsewhere are equally obvious, and Gavco is not overlooking the process industries as potentially big customers.

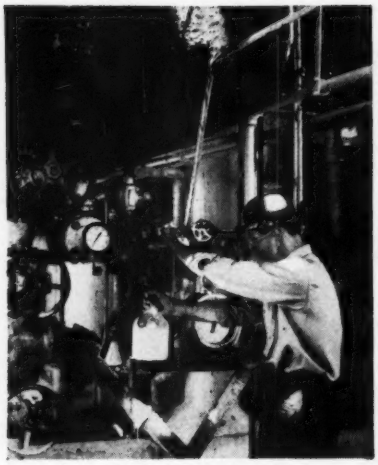
Although small (occupies less than 0.20 cu. ft.) and light (weighs less than 8 lbs.) the meter can handle flows up to 10,000 gals./hour. It's designed for "clean" liquids, but can be adapted, says Gavco, for measurements of gases, liquid-solids, slurries and suspensions. In fact, Gavco says, the only changes necessary are in the size of the two sensing elements; those changes are now on the firm's drawing boards.

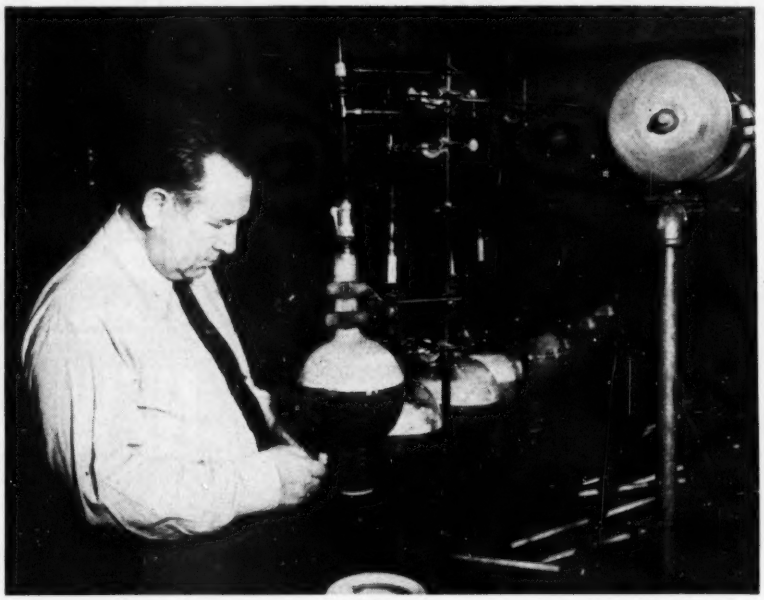
Gavco claims the meter is accurate to within 0.5% of volume rates, within 1% of the mass rate. Cost varies with the quantity ordered, but it is expected to sell for about $1,250.

All parts of the instrument are supplied as plug-in units, can be used in different combinations. Or the individual units can be hooked up to standard controlling or recording equipment. It's possible, for instance, to measure and record either the volume rate of flow or the density.

Purists, of course, will question the instrument's claim to being a true "mass flowmeter" since it measures two variables. And, in any case, all will want to know more about the density detector that Gavco describes merely as a "unique application of a reference-comparison principle." It explains that, although the device is covered by patent applications, it is keeping the information confidential until the Armed Services has its say.

* Control Engineering's flow meter determines the mass by measuring the moment necessary to give the mass a Coriolis acceleration. It's independent of temperature, pressure and viscosity variations. For a complete explanation of the instrument, cf. *Chemical Engineering*, March, '53.





BOYCE-THOMPSON'S SZUECS: You don't have to dig these crazy mushrooms.

Vatted Mushrooms

Using idle equipment to grow mushrooms is the not-so-idle dream of Boyce-Thompson's Joseph Szuecs (pronounced Sooch), who lays claim to having developed a process for cultivating mushrooms in penicillin vats. They're not synthetic in any sense of the word, he says. And though they're vat-grown, they have all the characteristics of the shed-grown variety.

Szuecs isn't the only one who has tried to improve on nature in growing mushrooms; the U.S. Department of Agriculture and others have been working along parallel lines. He figures, however, that he is the first to strike pay dirt, which in this case happens to be a nutrient solution. Sulfite liquor, for instance, is a suitable medium for his method.

There's nothing wrong with shed-grown mushrooms. The only trouble is that they entail a lot of expensive hand labor, and it takes months for the spore (seed) to reach maturity. With vat-grown mushrooms, overhead is kept to a minimum and the spore matures in about two or three days.

But as Szuecs sees it, the significant aspect of his work is that the mushrooms can be grown in penicillin equipment. The spore is simply planted in the vat under water and nutrient, allowed to mature, then centrifuged clean.

Szuecs observes that a 12,000-gal. penicillin tank can turn out 1 million lbs. of mushrooms a year. Moreover, the vat-grown mushrooms (25% solids) are considerably drier than those that are shed-grown (10% solids).

And the consumer will get several advantages when he buys the vat-grown mushrooms, according to Szuecs; for they need no washing, chopping, or preliminary preparations, hence involve no waste. He adds that all this is achieved with no sacrifice in flavor.

He puts the market for shed-grown mushrooms at 100 million lbs./year. For penicillin makers this means that —if the process lives up to expectations—when their business isn't mushrooming, mushrooming can be their business.

Stretching the Supply

One way to ease a shortage is to produce more; another is to find a substitute. Both are being tried with nickel. But last week, General American Transportation Corp. (Chicago) embarked on a new approach: a new plating process said to do a better job while using less nickel.

Dubbed the Kanigan plating process, it's a chemical rather than electrochemical (plating). Basic work on it was done by the Bureau of Standards, which felt it would never prove commercially feasible.

Other firms have used the process with some success, but General American thinks it has never been fully exploited and that its refinement of

EVAPORATION in SECONDS!

The unique Rodney Hunt Turba-Film Evaporator gives incredibly fast one-pass evaporation of liquids, slurries and gases... especially heat-sensitive substances... all by continuous process!

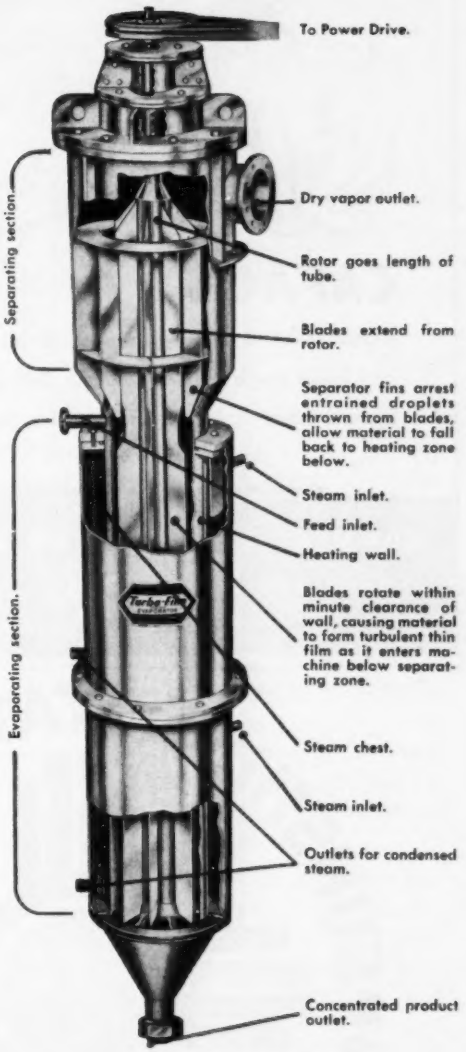
The Turba-Film Evaporator employs a totally different concept of evaporation. Makes heretofore extremely difficult evaporating processes simple and rapid. Actually evaporates most substances in a few seconds!

Here's how the patented Turba-Film® works. The substance to be evaporated is fed into the evaporating section. Here it is whirled against the wall by controlled-speed rotor blades. This forms a thin turbulent film, centrifugally held to the wall, which spins in a gravity flow through the chamber and out... completing the process. The vapors rise into the separating section where rotor blades beat out any entrained droplets and force them back through the evaporating section.

So thorough is this Turba-Film process that no substance requires re-circulation... the desired concentration is achieved in one pass! So fast is the Turba-Film action that proper heating is done in seconds. Colors, flavors, nutritional and other valuable properties are retained to a much higher degree... especially in heat-sensitive substances.

Because of its new principle, the Rodney Hunt Turba-Film Evaporator (Luwa Process, Switzerland) permits quick change-over from one product to another; prevents foaming and frothing difficulties; allows constant quality control to be maintained; permits concentration to very much higher viscosities and solids content than is practical with conventional equipment.

Please consider our complete engineering staff at your disposal for consultation on any possible Turba-Film application. We have the facilities for making test runs in our pilot plant: or we can provide a portable laboratory unit for use in your own plant. Mail this coupon for free color brochure explaining the Turba-Film Evaporator in detail.



Models available in ranges from 40 to 2500 pounds of water evaporation per hour. Stainless steel construction.

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CW 3-53

the process makes it commercially acceptable for the first time.

Any Size, Any Shape: General American got interested in the process while seeking an alternate method of lining its tank cars to prevent contamination of chemicals with "iron pickup" from the cars. It had been finishing the insides with enamel. That was satisfactory, but expensive and time-consuming. The life of the lining, moreover, was no more than five years.

It started working on the Bureau of Standards process, proved it in the laboratory, then built a pilot plant last summer. There it found that the process could be used to plate objects regardless of their particular size or shape. This is more than the firm bargained for when it started development work, should prove valuable in making process equipment.

Present company plans for the process include two new plants, one in East Chicago, Ind., the other in Los Angeles. Both are expected to start operations before the end of the year. Even so, General American figures it won't be able to meet all demands, and after the plants start up, will be prepared to license the process to other companies.

The firm figures the process can do the job conventional processes do—with only one-third to one-half as much nickel. That, plus its ability to plate large or odd-shaped pieces, are the big features.

But the firm figures the process is out in front on several other counts as well:

- It deposits a coating of uniform thickness. Variations, in any case, it says, should not exceed 10% of the average thickness.
- The porosity of the finished plate is almost zero. This is not required in all cases, but could be a decided advantage in some.
- It gives a plate with corrosion resistance almost as good as wrought nickel.
- It produces a bond that in some cases is stronger than the metal on which it is deposited. It can also be used to coat glass and plastics.

Unknown Quantities: In the Kanigan process, the bath consists of a solution of nickel salts (either nickel sulfate or nickel chloride) and sodium hypophosphite (as a reducing agent) in a plastic tank. Also added are a buffer and an ingredient that acts as an accelerator and inhibitor. Apparently, the success of the process is due to the nature of the two, and General American is keeping that part of the process under wraps.

The finished plate is a nickel-nickel phosphide composition that normally runs between 5 and 8% phosphorus.

3 major reasons why Celanese will continue to be your first source for

ACETALDEHYDE

BISHOP, Texas . . . . . .

Expanded units at Chemcel have greatly increased production of Celanese* Acetaldehyde . . . have a potential capable of meeting the growing need for this important intermediate.

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This great new Celanese plant uses the most modern processes and controls to safeguard quality and uniformity . . . helps to make Celanese your leading source for acetaldehyde.

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Drawing on Celanese engineering skill and experience, this new Canadian affiliate will provide additional assurance to all industries of continuous volume supplies.

For the manufacturers of insecticides, pharmaceuticals, dyes, and resin intermediates, Celanese multiple supply provides a solid basis for expansion and development. Contract with Celanese for your acetaldehyde requirements. Immediately available for prompt delivery to your plant in tankcars or drums.

For samples, prices and complete technical data, write Celanese Corporation of America, Chemical Division, Dept. 752-C, 180 Madison Avenue, New York 16, N. Y.

CELANESE SPECIFICATIONS FOR ACETALDEHYDE

ACETALDEHYDE Content, % by wt., min.	99.0
Specific Gravity @ 18/20°C.	0.780-0.790
Color	Water White
Acidity, % by wt. as Acetic, max.	0.1

Celanese* CHEMICALS

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Security for Sensitive Chemicals–

in Hackney Stainless Steel Drums

REMOVABLE HEAD OR TIGHT HEAD

Ship with safety in these Hackney Stainless Steel Drums. They're rugged and lightweight —assure complete protection for your products in transit or in storage.

Protection from Corrosion and Discoloration— Available in several types of stainless steel to suit product requirements. Also in nickel and monel metal.

Protection from Contamination—Drums easily and quickly cleaned for re-use—smooth interiors have no cracks or crevices where traces of the previous shipment can lodge.

Protection from damage in transit—Designed to take the hard knocks of shipping without danger of leakage. Heavy I-bar rolling hoops securely attached. Heavy curled foot rings for added protection. Good for years of service and many, many round trips.

HERE'S THE SMOOTH HACKNEY CHIME CONSTRUCTION—

Other Hackney Features that Assure Full Protection and Low Maintenance—

Removable Head Drums: Steel reinforcing ring in top curl for extra strength. Cover extends over top rim to keep out dirt when drum is opened.

Your choice of quick-acting Toggletite or bolt type closure. Furnished with or without rolling hoops, in 30, 50 or 55 gallon sizes.

Tight Head Drums: Full curled foot ring on both ends. Forged steel spuds, securely welded and protected by the rolling hoops.

Seamless heads attached by smooth butt weld—that leaves no crevice—assures easy cleaning.

Complete specifications are given in the new Hackney Drum and Barrel Catalog. Write today.

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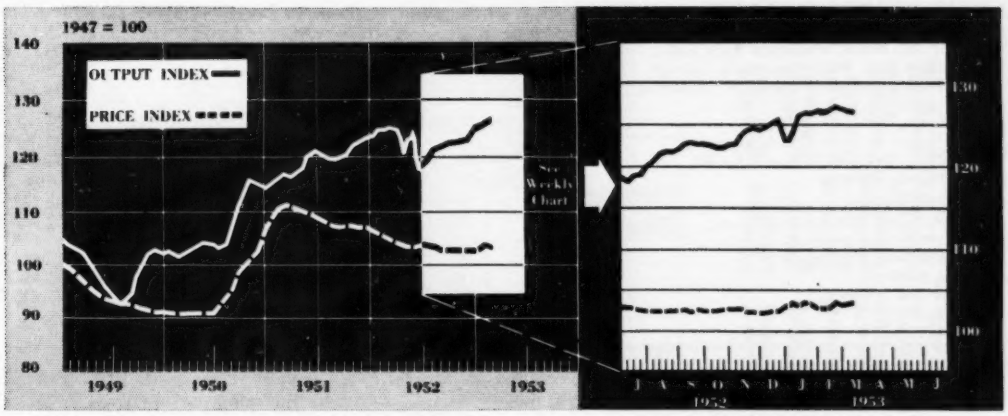
CONTAINERS FOR GASES, LIQUIDS AND SOLIDS

MARKETS . . . . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries
CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

MARKET LETTER

When the International Materials Conference ended allocation of crude sulfur as of this month—as CW indicated it would (Market Letter, Jan. 10)—market-wise observers saw the move as world confirmation of the brighter sulfur supply situation.

But early last week that picture was dimmed somewhat by the Office of International Trade's announcement that allocation of crude and refined sulfur for export will be continued in the second quarter of 1953. The beclouding reason advanced by OIT: U. S. supply position does not warrant unrestrictive export of either crude or refined sulfur at this time.

At the moment it isn't clear what effect the continuing restrictions will have on New Zealand's shopping in the U. S. for a reported extra 29,000 tons above its annual sulfur requirement (96,000 tons), but chances are if the OIT action doesn't dampen foreign buying zeal, the recent $4.00/ton hike in export sulfur tags will.

The incentive to purchase simply to "take advantage of the current improved supply"—and U. S. prices—could very well vanish at the new $30.50/ton (f.o.b., at the port) price level.

The Government, through RFC, is bargain hunting again in the alcohol market, this time for 20 million gallons to be used in the manufacture of synthetic rubber during the second quarter. However, don't look for the same enthusiastic scramble for the bid among producers that occurred last January.

Among the factors that account for the change of heart:

- Alcohol makers' inventories are lower than they were.
- Regular customers are now buying at a fairly good clip.
- Fermentation alcohol makers are paying steadily mounting prices (now near 10¢/gal.) for rapidly disappearing Cuban blackstrap.

It all boils down to this: While U.S. producers don't actually need the Government business, most will no doubt submit quotations for a piece of the 20-million-gal. request. And at a probable higher-than-last-time 40¢-48¢/gal. figure.

There's talk, too, that foreign alcohol producers are taking a long hard look at the RFC requirement, with the French, principally, hoping to slug a goodly amount into the U. S. at a lower-than-domestic tag.

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	$ 126.7	$ 126.5	$ 125.1
CHEMICAL WEEK Wholesale Price Index (1947=100)	103.9	103.6	103.3
Bituminous Coal Production (daily average, 1,000 tons)	1,405.0	1,350.0	1,623.0
Stock Price Index of 14 Chemical Companies (Standard & Poor's Corp.)	261.3	258.0	233.3

MONTHLY INDICATORS—TRADE (Million Dollars)	MANUFACTURERS' SALES			MANUFACTURERS' INVENTORIES		
	Latest Month	Preceding Month	Year Ago	Latest Month	Preceding Month	Year Ago
All Manufacturing	$24,338	$24,276	$22,634	$43,682	$43,824	$43,178
Chemicals and allied products	1,631	1,558	1,523	2,968	2,968	2,979
Paper and allied products	738	682	714	996	1,001	995
Petroleum and coal products	1,994	2,174	1,938	2,642	2,727	2,574
Textile products	1,138	1,151	1,143	2,536	2,654	2,991
Leather and products	269	288	252	552	548	615

And the domestic benzol market continues to be eyed; gleefully by producers, "griefully" by consumers. Janus-type reason: stepped-up demand has output moving as fast as it is made; and the pace is nudging manufacturers' schedules to higher levels.

Prices are now hovering between 36¢-40¢/gal. (after last week's advances) and chances are a general price increase is in the works.

On the other hand the recent $10/ton plummet of dibasic calcium phosphate prices (to $80/ton, bags, c.l.) may be the harbinger of a softening market. A combination of new production and an increase in import material is behind the more-than-ample supply.

Movement of most fertilizers is being labelled as far from brisk even at this late spring date. Though all mixers are not in the same plight, some are still being plagued by jammed storage space.

Potassium muriate and ammonium sulfate, however, are undergoing a belated March pickup with the latter slated for at least one producer's $2/ton jump—due next week—over the current $44/ton quote.

Chlorine consumers are still fidgeting over producers' wibble-wabble of future contract prices last week. Most users had been told to expect a $4/ton hike but as of now the future increases have been—for the most part—rescinded.

Behind the backdown: One major chlorine maker remained recalcitrant when the first increases were announced. Another's plan to raise prices effective April 1—but with sales to be billed at current prices until May 1—was shelved to avoid a split market. Reasoning: why jack up our price with lower-tagged material available? Result: no second quarter increase by any producer.

Significance: most summertime heavy chlorine users will stock up at current lower prices, realizing the increase has just been delayed until the third quarter—right in the big consumption period.

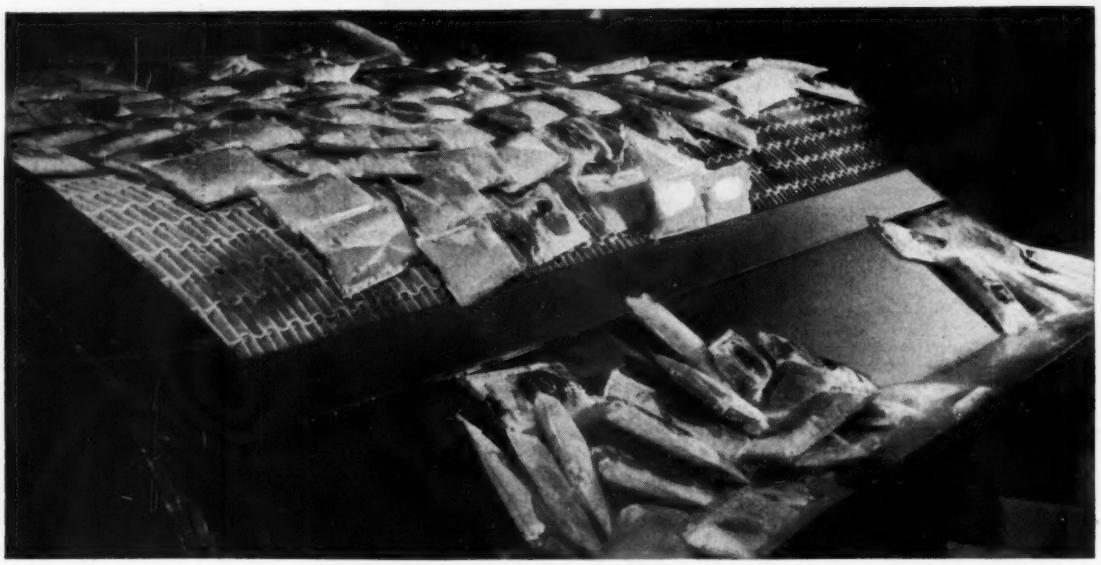
Some biologicals users, however, are reaping immediate benefits via lower inositol (part of the vitamin B complex) schedules. Corn Products Sales (N.Y.) this week is lopping off $1.10/lb. on single shipments of 50 lbs. or more in 50 or 100-lb. drums.

SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending March 23, 1953

UP

	Change	New Price		Change	New Price
Sulfur, crude, bulk, c.l., mines long ton	$3.50	$25.50	Hydrofluoric acid, anhy., tanks, wks.	.03	.21
Pyridine, 2 deg. ref., l.c.l.	.169	1.15	Thiourea, tech., drms., c.l., wks.	.03	.465

All prices per pound unless quantity is stated.



JUICE IN FILM: Over the freezer . . .

Bagging A New Market

With today's variety of flexible film available, packagers seem to be limited only by their own imaginations.

Take the frozen citrus industry, for example. Right now it's breaking ground into a brand-new market, promoting a film container that bids strongly to revolutionize fruit-juice handling—and, importantly, will add millions of pounds to the annual consumption of flexible film.

Starting the trend last year, Pasco Packing Co., whose Dade City, Fla., plant processed 22% of the Florida frozen orange concentrate, put up seven million film-packaged servings for soda-fountain use. This year, Pasco hopes to boost output several-fold, turn out perhaps 50 million orange concentrate pouches (as they are called by the trade).

And Pasco, pioneers in the film-packaged concentrate field, is being joined by other packers. Fruit Industries, Inc., Bradenton, Fla., is making its bid with an estimated 1953 capacity of 25 million pouches. And at Groveland, Fla., B & W Canning Co. is gearing up for 25 million. Snow Crop and Minute Maid, two of the largest operators, are reported checking the trend with more than casual interest.

Not to be outdone, California producers are entering the field. The Paramount Citrus Assn. at San Fernando and Sunkist Growers at Ontario are processing orange concentrate. California Fruit Growers Exchange is now testing a pouch package of frozen lemonade concentrate through retail channels.

Just how far this pouch business will snowball is an interesting conjecture. Pasco is convinced that 20% of all orange concentrate might eventually be sold in the film packages. That much concentrate would require over 500 million of the 2½ oz. size bags annually.

In terms of film, 500 million pouches translates to roughly 1.7 million lbs.—at present prices, about $2.2 millions' worth of film.

From a Whisper: As an example of the development in film packaging, the concentrate container is notable for the speed with which it took hold. Eighteen months ago, the industry was only a whisper into the ear of Ellis H. Fehlberg, Pasco's technical director.

Pasco had been trying to sell the large drug store chains the idea of using frozen orange concentrate at their fountains. When it told its story to R. G. Schmitt, Walgreen vice-president, the answer flashed back as a challenge. Walgreen's would be definitely interested, promised Schmitt, if Pasco could develop an individual package that could be quickly reconstituted into a glass of orange juice at the fountain. Fehlberg, with the technical assistance of Standard Packaging, Inc. (Jersey City, N.J.), went to work on the problem.

They first tried fabricating the pouches from polyethylene film, but the attempt failed for two reasons: (1) a firm, leakproof seal was difficult to achieve and (2) polyethylene, while waterproof, is permeable to citrus-sensitive oxygen.

The development team finally hit upon a laminated film. Retaining the polyethylene for the inside material, they added an outer film of cellophane. The combination proved to be oxygen-, oil-, and waterproof, flexible at low temperature, adaptable to existing packaging machinery, and printable.

A food container presents special printing problems. These were solved by printing in reverse on the inside surface of the cellophane before laminating to the polyethylene.

Although Standard Packaging was first to supply the laminated film, two other fabricators. Dobeckmun Co. (Cleveland) and Shellmar (Mount Vernon, Ohio), have since entered the field. And so rapidly has the demand grown that today it looks as though all three suppliers—and possibly others—may be needed to furnish pouches. The demand is seasonal, of course,

. . . to the fountain.

reaching a peak between now and July, when Valencia oranges, mainly used for the concentrate, are picked.

End Product: At the retail end, the problem of reconstituting the frozen concentrates has been solved. Walgreen contracted with Cory Corp. (Chicago), which devised a special mixing machine. With it a soda fountain clerk can convert a 2½ oz. bag of concentrate into 10 oz. of foamy orange juice within 15 seconds.

This switchover from preparing fresh orange juice is saving Walgreen perhaps 7¢ worth of labor on each glass of juice. Multiply this individual saving by the 13 million glasses Walgreen sold last year and it's easy to see why Schmitt was interested.

Juicy Future: Enthusiastic Glynn Davies, Pasco's assistant president, sees the pouch packaging method spreading to packets of pineapple, grape, other juices.

Pasco's own plans call for expansion to other drug chains, once Walgreen is taken care of. With over 30,000 drug-store soda fountains in the country, the immediate pouch package potentialities look great.

And although they're taking a "first-things-first" stand, the processors are casting their eyes on that other vast outlet, the for-home-use market.

Having the housewife trade in mind, one juice canner went on record: "You can be sure this flexible pouch is going to be something very big, and what we see now may be but the beginning of a train of developments of vast importance."

SPECIALTIES . .

LIQUID LUX: Suds for 2,000 dishes, competition for Babbitt, P&G.

Look Out for Lever

Lux Liquid Synthetic Detergent, packaged in a 12-oz can, and priced below competition, has just hit dealers shelves in two Eastern areas.

Lever, with three new products this year, thus joins battle with P&G and B. T. Babbitt. It looks like a gloves-off fight for the dishpan-sudser dollar.

With an eyecatching, red-white-blue lithographed can of Lux Liquid Detergent, Lever Brothers crashed into the liquid dishwashing compound field this week. Housewives in Washington and Philadelphia are first to get their hands on Lever's bid for a piece of the $18-million household liquid synthetic detergent market.

But liquid Lux is more than a new product by one of soap's Big Three. Lever is trail-blazing with a 12-oz (about 39¢ at most stores) metal pack. Sales bait: a brilliantly colored display package that can be shipped cheaply, stacked securely, stored compactly.

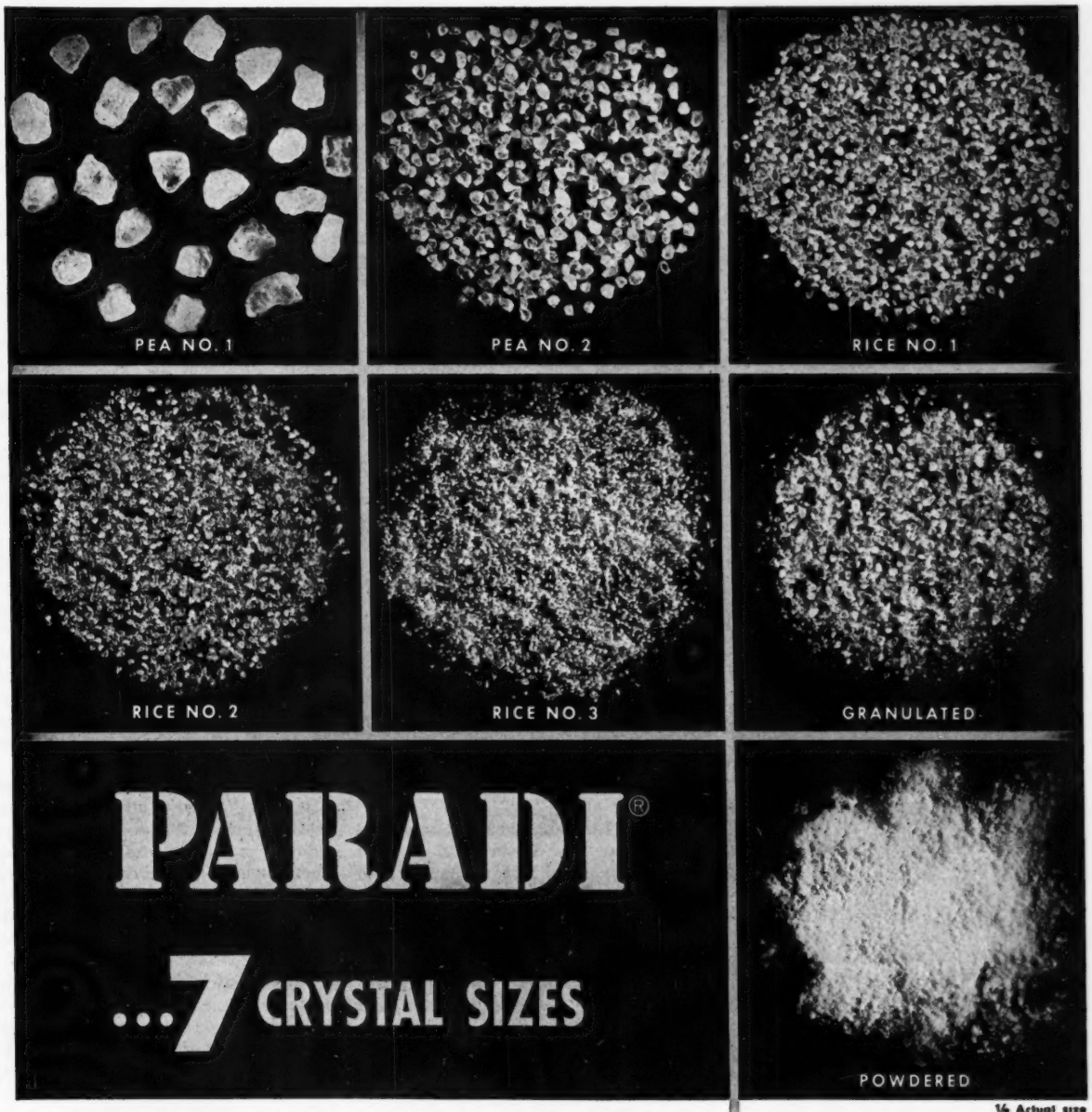
And, advantageous to both maker and user, the new container is unbreakable; that's important to the housewife who must frequently handle it with wet, slippery hands.

Suds Surge: The stunning rise in bottled liquid synthetic detergent consumption since 1948 continued in '52, until now the liquids have leveled off at an easy 6% of the total synthetic detergent market.

Though first quarter '53 sales figures are not yet reported to the Soap and Glycerine Producers Assn., '52 statistics show the liquids to be up 29.7% poundwise over '51 figures, up 20% dollarwise (which is considerably below the 122% dollarwise hike of '51 over '50). Far and away the major portion (estimates average about 85%) of sales is to the housewife, rather than to industry.

Only P&G of the top soap makers, however, has gone in heavily for the liquids, and with its Joy has largely pulled away from the second place seller, B. T. Babbitt's Glim. Joy has also far outdistanced numerous other liquid sudsers, with a few localized exceptions. But until this challenge by Lever, none of the really big soapers has done more than work out possible formulations and test-market products in limited areas.

In Tin: With its metal-packed detergent, Lever can radically alter liquid synthetic detergent selling. The unit that permits these inovations is a beercan-size, epoxy-ester lined can now produced by Canco (American



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Can Co.). It has what is termed a dripless metal spout, and a plastic cap for measuring the liquid.

With this new can, at which Canco has been hinting for some months (*CW, Nov. 1, '52*), a number of products formerly assumed to be too corrosive may soon be on store shelves in cans instead of bottles. Cost has been the hold-back on extensive epoxy use; Lever and Canco seem to have licked it.* Right now, Lever has the inside track on supply of these units, and indications are that Canco is currently out front in epoxy-lined can development.

The 12-oz can of amber-colored Liquid Lux, at 39¢, is said to be enough to wash 2,000 dishes. The price is claimed to allow dealers a large mark-up, yet still enable them to sell at prices lower than competitors (Joy is 7 oz. for 29¢; Glim 6 oz. for 27¢).

Beyond that Liquid Lux is a high-sudsing anionic, Lever will say little. At present, it is being manufactured and packaged in the East by Fluid Chemical Co. (Newark, N. J.), and in the Midwest by Stepan Chemical Co. (Chicago). Reasons for employing outside manufacturers and packagers (in one of the largest deals of this sort in the industry) have not been revealed, either.

Lever Line: Liquid Lux is one of a number of new Lever products that have highlighted that company's 1953 rejuvenation. In January, a new formulation of Swan soap was marketed, a perfumed floating bar priced at 5¢. Then a few weeks ago came Rinso detergent, a synthetic designed to bolster sales in hard-water areas. And word is that Lifebuoy, changed in formulation only a few months ago, is due for another complete revamping.

This trio of new products points up an interesting policy of capitalizing on firmly established tradenames, and altering product composition to meet current needs.

Though it's too early to evaluate the success of the new sales push, it's apparent that Lever is out to snatch more of the national soap and detergent business, which has been 19-22% of the country's total for the past 15 years†. The question now: What's next?

* Shell Epons, the basis for nearly all epoxy-resin coatings, have come into their own in the past year. Now onstream is a new Houston plant of Shell Chemical Co. for production of epichlorhydrin (essential to manufacture of Epons), but the supply of these resins will likely remain tight until fall, when resin plants and bis-phenol plants in Houston are due onstream.

† Figures given in U.S. District Court for New Jersey suit against Lever, P&G, and Colgate (Dec. 20, '52) show Lever had 9% of U.S. total sales in 1925, 22% by '37, 19% in '47, and 21% in '51.

Crescent City Blues

Main theme of the New Orleans meeting of the National Agricultural Chemicals Assn.: the essentiality of farm chemicals in meeting the rising demands for food production.

But there were sadder strains, too—of overcapacity in ag chemicals, of decreasing effectiveness of many pest controls.

That the insecticide production situation is not a "healthy or happy one, but . . . realistic" was the tenor of Assn. President A. W. Mohr's remarks. "Industry profits will be meager, if there are any at all," he said.

And Avery Hoyt, of the USDA, repeated the warning that has been somewhat overplayed in some areas of the press: "We don't know just how long present insecticide controls, most of them still remarkably effective, will continue to . . . give this nation the bumper crops . . . so necessary to the present high standard of living."

As if to further the gloom, the Assn.'s Counsel John Conner offered the prediction that if farm income drops (as has been evidenced), the likelihood of product liability suits will go up.

Turn to the Forest: But some relief was offered. Heavy attention was focused on chemical control of forest pests. The lumber loss to insects has been mounting in recent years, and the market for chemicals that could reduce the toll (which in the South alone was over $4 million) appears to be plump.

Minor drawbacks—likely to be oversome soon—seem to be the lack of detailed information on forest pests, an inadequate information service pointing to the threatening infestations, and sparse research on the most effective chemical controls for the pests.

•

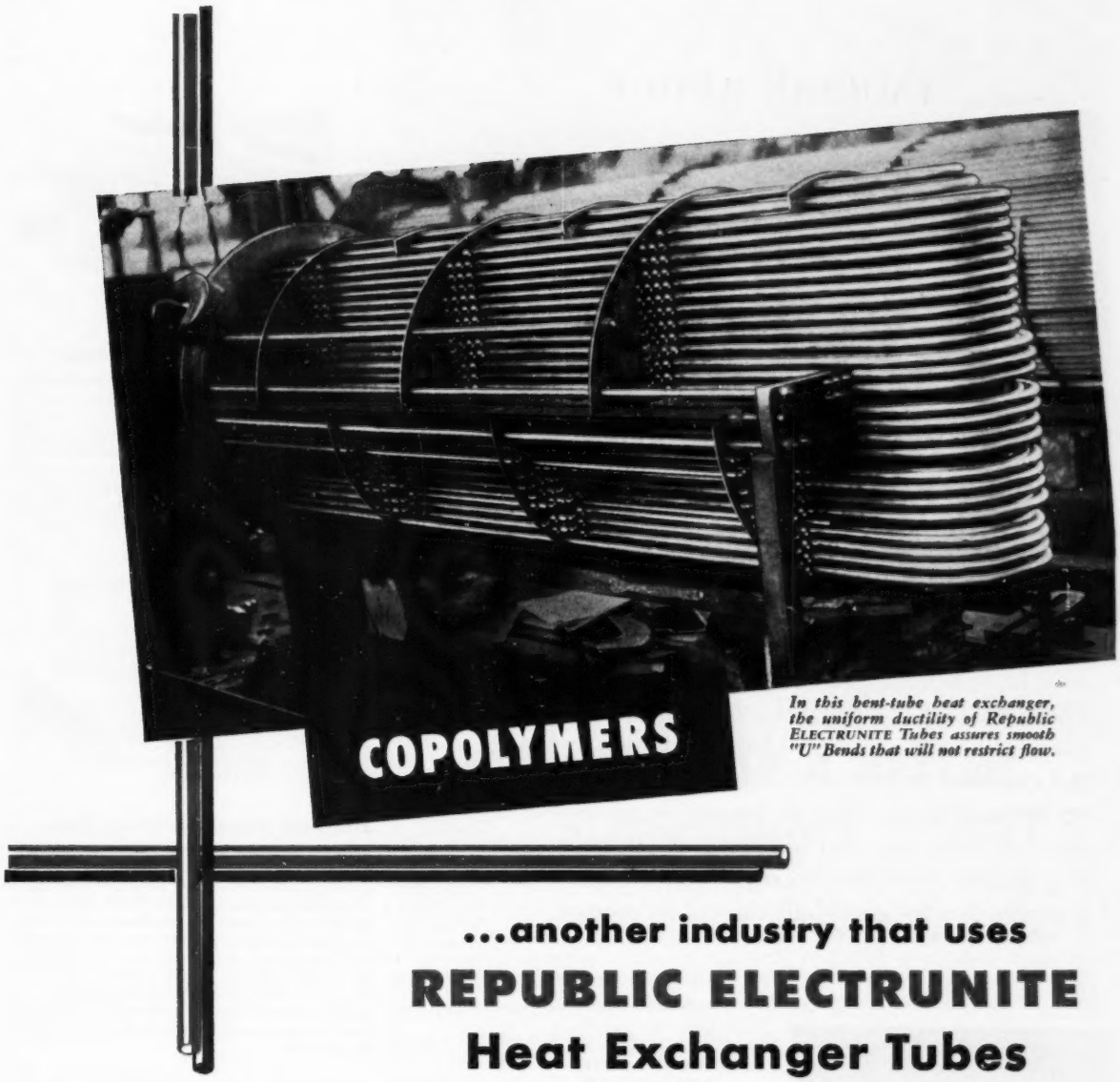
Add One: Another unit for production of the polyester resin catalyst Lupersol DDM has been installed by the Lucidol Div. of Novadel-Agene Corp. (Buffalo). And production of the catalyst for polyvinyl chloride resins, Alperox C Technical Lauroyl Peroxide, is to be upped also.

•

Fly Bait: Working along the lines of recent USDA research, scientists at Iowa State College are investigating the possibilities of controlling flies with poison-bait of malt mixed with formalin and Du Pont EPN.

•

Bronze Bomb: What is termed the first varnish-stain aerosol has been put on the market by Illinois Bronze Pow-



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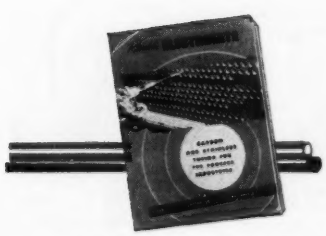

WRITE FOR "BOOKLET SPI-53" which gives useful data and specifications on Republic ELECTRUNITE Pressure Tubes, both carbon and stainless.

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der Co. Inc. (Chicago). Aimed primarily at the unfinished furniture market, Spray-o-Stain, as it has been tagged, sells for $1.59 in a 12-oz. container, is offered in walnut, maple, mahogany and oak stains. It isn't yet available nationally; it's been test-marketed in Chicago and on the West Coast.

•

Tough Skin: Pliogard coatings have been introduced by Saran Protective Coatings Co. (Ferndale, Mich.). The new coatings, copolymers of styrene and butadiene, are claimed to offer protection against vapors of acids and alkalies, to be unaffected by fats and oils. Exceptional adherence with minimum surface preparation is claimed.

•

Flame-Out: Displayed at the National Farm Chemurgic Council meeting in St. Louis last fortnight were sample fabrics treated with the chemical THPC (based on urea and methylolmelamine) to impart flameproof qualities.

The process using THPC has been worked out by the Southern Regional Research Laboratory (New Orleans) of the USDA. Research on cotton flameproofers has been pushed by the Army Quartermaster Corps, which is seeking a flameproof fabric suitable for military clothing. THPC is claimed to impart not only flameproofness good through 15 washings, but also wrinkle resistance and absence of afterglow.

Applied with standard textile equipment, the chemical is "cured" into the fabric at 285 F, and the fabric is then washed to remove excess chemicals. Cost of new processing is estimated to be slightly higher than present commercial processes.

•

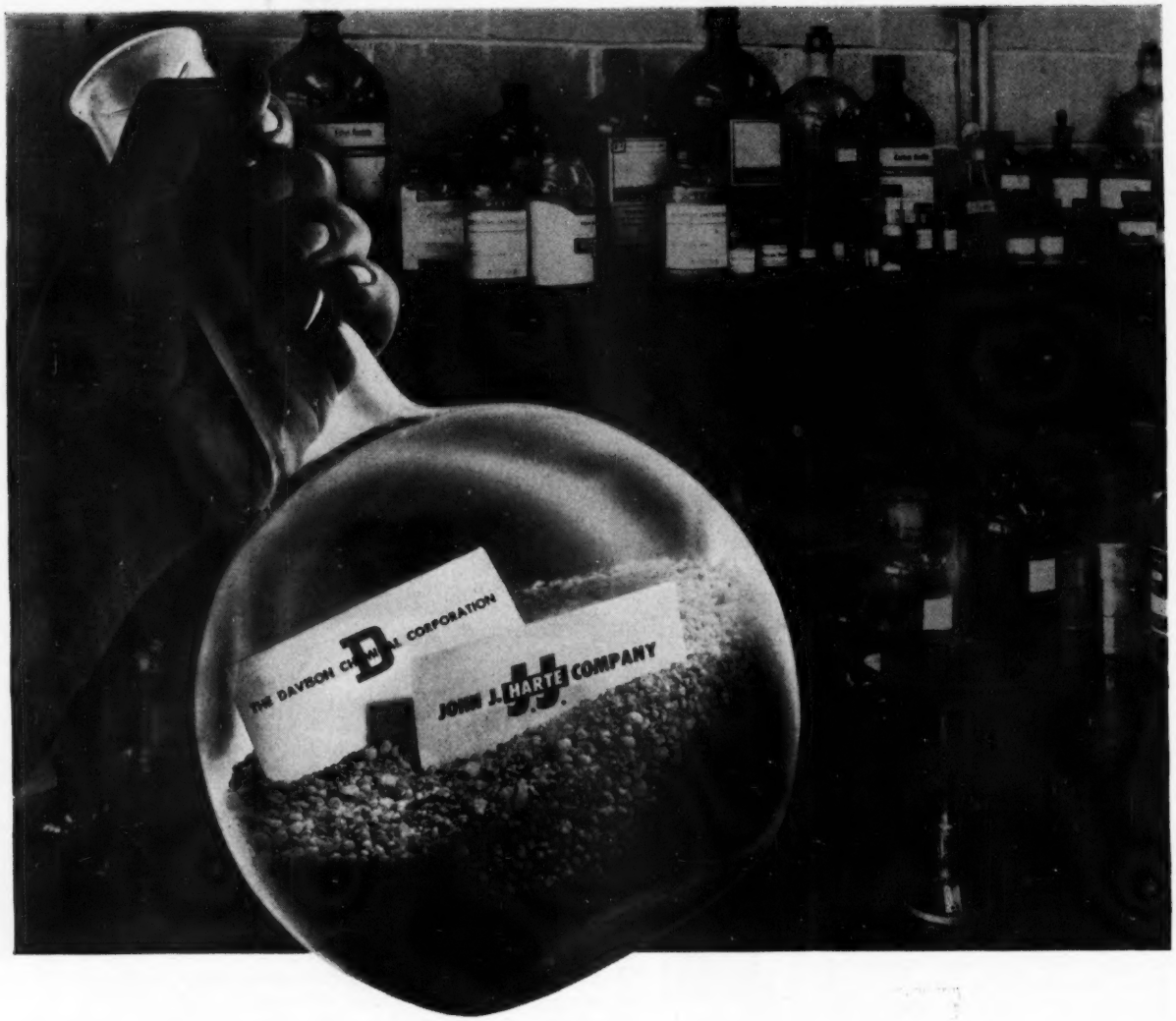
Versatile Wynn: Wynoil Laboratories Azusa, Calif.) is now making a new hand cleaner in addition to its well-known oil additives. Its Versatile Hand & Household Cleaner has been introduced to clean nearly everything from plumbers black mastic to paint brushes. The new cleaner can be used with or without water, is said to contain glycerine and chlorophyll, in addition to cleaning compounds.

•

Glue All: Now being introduced in the Midwest is a new adhesive made by Singer Home Products (Jamaica, N.Y.) called Weldit. Product is said to stop leaks, and glue wood, rubber, glass, etc.

•

Floor Show: Formula Floor Products, Inc. is sponsoring the 1953 show of the Modern Sanitation and Safety Assn., April 14-15, Newark, N.J.



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The Davison Chemical Corporation has named the John J. Harte Company as licensing agent for the Davison granular fertilizer process. This brings together extensive fertilizer experience — the chemical process plus the design and erection of facilities for its application, with guaranteed production of new, superior *granular* plant food.

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They're All Important

Sales service to small molders and large is still the key ingredient of plastic salesmanship.

Into the starkly modern sales offices of a major molding-powder producer trooped, last week, the representatives of one of the nation's largest contract molders. There they spread out their plans and specifications for a new product that will soon be popping out of their banks of injection presses. But before they gave the go-ahead to the production department, they wanted to check with their raw material supplier for last-minute suggestions and advice.

"Sure, that company has its own engineering department," said the plastic producer's assistant sales manager to a CW interviewer a few hours later. "But they came to us for advice when they couldn't afford even a single plastic technician—and that habit seems to have stuck."

That "habit" has more than stuck. It's at the center of all plastic producers' sales programs. "It gives us a chance to police the market," says another sales executive, candidly. He meant that it gave his company a chance to hold down the number of "black eyes" that plague the plastics industry whenever a plastic product fails to live up to the public's expectations.

"One failure undoes the benefits of 15 successful applications," echoes a third company. To keep those failures at a minimum, most producers maintain complete technical service departments. Rarely is any request given the brush off (even when the potential profit from the resulting sale is miniscule). And the average salesman would never think of checking a Dun & Bradstreet rating before answering a telephone inquiry.

This blend of self-interest and altruism extends especially to the myriad of ultrasmall molders and fabricators. Not only is this the most fertile area for the unwise cost-cutting that ends up in a plastic "black eye," but also, as one executive puts it, "This whole industry was once made up of little fellows, and our biggest customer five years from now may be operating in some corner garage somewhere today."

Choices: Concern for the health and welfare of the small molders affects all phases of the plastic makers' sales policies. Although there are exceptions, credit is comparatively easy. Says one sales manager: "When our credit man sees that a small customer is getting into trouble, he never takes the easy way out by tightening up on our normal 'net 30' terms. Instead, he tries to work with the customer, giving financial advice and helping the company to rebuild its position."

Technical help itself extends to such nonchemical items as good housekeeping, choice of colors, and retail sales techniques.

But the heart of sales service lies in these three areas:

- Choice of plastic type best fitted to product.

Cast of Characters

The small new molder (or even the grown-up veteran) finds himself in a confusing jungle of plastic types, catchy trade names, and seemingly inconsistent physical characteristics. But fortunately the great bulk of plastics can be grouped into ten basic families, creating some semblance of order. Here are those family groups—and some of their individual members:

ACRYLIC GROUP

Lucite	E. I. du Pont de Nemours
Plexiglas	Rohm & Haas Co.

AMINO GROUP

Melmac	American Cyanamid Co.
Plaskon Melamine	Plaskon Div., Libby-Owens-Ford
Beetle	American Cyanamid Co.
Plaskon	Plaskon Div., Libby-Owens-Ford

CASEIN GROUP

Ameroid	American Plastics Corp.
Galorn	George Morrell Corp.

CELLULOSIC GROUP

(Cellulose acetate)

Ampacet C/A	American Molding Powder & Chem.
Lumarith	Celanese Corp. of America
Plastacele	E. I. du Pont de Nemours
Gering C/A	Gering Products, Inc.
Hercules C/A	Hercules Powder Co.
Nixon C/A	Nixon Nitration Works
Tenite I	Eastman Chemical Products
Westchester C/A	Westchester Plastics Co.

(Cellulose acetate butyrate)

Tenite II	Eastman Chemical Products

(Cellulose propionate)

Forticel	Celanese Corp. of America

(Cellulose nitrate)

Pyralin	E. I. du Pont de Nemours
Nitron	Monsanto Chemical Co.
Nixon N/C	Nixon Nitration Works

(Ethyl cellulose)

Ampacet E/C	American Molding Powder & Chem.
Ethocel	Dow Chemical Co.
Gering E/C	Gering Products, Inc.
Hercocel	Hercules Powder Co.
Nixon E/C	Nixon Nitration Works

NYLON GROUP

Nylon	E. I. du Pont de Nemours

PHENOLIC GROUP

Bakelite	Bakelite Div., Union Carbide
Durite	Borden Co.
Catalin	Catalin Corp. of America
Durez	Durez Plastics & Chemicals
G E Phenolic	General Electric Co.
Resinox	Monsanto Chemical Co.
Indur	Reilly Tar & Chemical Co.

POLYETHYLENE GROUP

Bakelite Polyethylene	Bakelite Div., Union Carbide
Alathon (polythene)	E. I. du Pont de Nemours

POLYSTYRENE GROUP

Bakelite Styrene	Bakelite Div., Union Carbide
Catalin Styrene	Catalin Corp. of America
Styron	Dow Chemical Co.
Koppers Polystyrene	Koppers Co.
Lustrex	Monsanto Chemical Co.

SARAN GROUP

Dow Saran	Dow Chemical Co.
Velon	Firestone Plastics Co.

VINYL GROUP

Vinylite	Bakelite Div., Union Carbide
Velon	Firestone Plastics Co.
Geon	B. F. Goodrich Chemical Co.
Pliovic	Goodyear Tire & Rubber Co.
Ultron	Monsanto Chemical Co.
Marvinol	U. S. Rubber Co.

THE PERKIN-ELMER

INSTRUMENT DIGEST

A condensation of some articles in the Winter issue of THE PERKIN-ELMER *INSTRUMENT NEWS*, a publication of The Perkin-Elmer Corporation, manufacturers of scientific instruments—Infrared Spectrometers, Tiselius Electrophoresis Apparatus, Monochromators, Flame Photometers, Continuous Infrared Analyzers, Amplifiers, Astronomical Equipment, Thermocouples, Lenses, Crystal Optics, Special Designs for the Government.

For further information, write The Perkin-Elmer Corp., Norwalk, Conn. Southern Regional Office: Lee Circle Building, New Orleans, La.

Norwalk, Conn. | March, 1953 | Vol. 4, No. 2

CONTINUOUS PROCESS CONTROL BY INFRARED ANALYSIS

One Step Closer to the Automatic Plant

Two new continuous infrared analyzers for the control of chemical plant process streams are now in production at Perkin-Elmer. The Model 93 BICHROMATOR Analyzer and Model 105 TRI-NON Analyzer will have a profound influence on the chemical industry and bring us a big step closer to the automatic processing plant.

• **Laboratory To Plant**—The possibilities of continuous control of chemical plant process streams by infrared analyzers have been known for some time, since batch analysis with a laboratory infrared spectrometer has often been done. However, the commercial availability of the analyzers has been slow because laboratory apparatus requiring operator control had to be converted to plant apparatus which does not need an operator.

A careful study of this laboratory-to-plant apparatus conversion shows that one type of instrument cannot meet all problems. At least two types are required for plant problems.

• **Two Analyzers**—For this reason, Perkin-Elmer has carried out the simultaneous development of dispersion and non-dispersion analyzers. The TRI-NON Analyzer is a triple beam, non-dispersion, selective detector instrument; the BICHROMATOR Analyzer is of the dispersion type. Each is a true radiation null instrument. From its detector on, each uses nearly identical parts to minimize service problems. Complete descriptions of both instruments will be found in the Winter 1953 issue of The Perkin-Elmer INSTRUMENT NEWS.

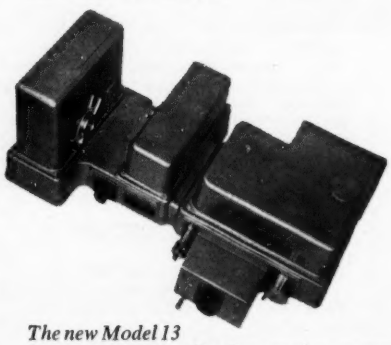
An Application Engineering Group has been established at Perkin-Elmer. Its services are available to anyone who has, or who forsees, a process control problem that might be solved by an infrared analyzer. The group is made up both of chemical engineers versed in plant process problems, and instrument engineers familiar with the design and operation of infrared equipment. When an instrument is shipped, it will be of the type best suited to the specific plant problem, and individually sensitized and adjusted to a particular plant stream.

New Direct Ratio-Recording Infrared Spectrophotometer Has Versatility and Efficiency

The new Perkin-Elmer Model 13 Direct Ratio-Recording Infrared Spectrophotometer meets the requirements for an instrument of intermediate price which can be used either single beam for extreme optical or sampling versatility, or double beam for direct transmittance recording and elimination of atmospheric absorption.

• **Types of Instruments**—Perkin-Elmer currently supplies two types of infrared spectrometers: (1) the Model 112 single beam, double-pass instrument, and (2) the Model 21 optical null spectrophotometer. The Model 112 is a very versatile spectrometer of modular construction but it has the two disadvantages of single beam infrared spectrometry: atmospheric absorption interference and point-by-point comparison of two records for transmittance spectra.

The Model 21 is the ultimate for standard absorption spectrophotometry with provision for linear abscissa. Such requirements become expensive where a variety of prisms is used. However, the 21 has difficulties inherent in a specialized instrument. For example, the two radiation beams must be optically balanced. This can be difficult with hot or cold samples, etc. Moreover, the dispersed sample beam is not separately accessible as is necessary for use with a microscope.



The new Model 13 Direct Ratio-Recording Spectrophotometer

The new Model 13 fulfills the requirements for those installations requiring the advantages of both single and double beam operation in a single instrument. Complete description and performance data can be found in the Winter 1953 issue of INSTRUMENT NEWS.

20 Percent Plant Expansion Under Way at Perkin-Elmer

A 10,000 square foot *addition is under construction at our Norwalk plant. To be completed in April, it will provide space for process control analyzer facilities.*

Receive 8-page Instrument News

Write: The Perkin-Elmer Corporation, 820 Main Avenue, Norwalk, Connecticut

Featured in the Winter issue are:

PROCESS CONTROL ANALYZERS
Descriptions of New Plant Stream Instruments

MODEL 13 OPERATES SINGLE OR DOUBLE BEAM
New Direct Ratio-Recording Spectrophotometer

RECORDING IN THE ULTRAVIOLET OR NEAR-INFRARED
Description of Model 112-U and Attachments

DISTRIBUTION. . . . .

• Design of product so that it will stand up in service.

• Proper processing of the plastic.

The third of these is a familiar one that has its counterpart in all chemical selling. Questions of pressure, temperature, time, etc., are easily answered without "fielder's choices."

But the other two areas often put the seller in a spot where he needs Solomon-like judgment. The plastics on the market today are as varied as their trade marks (*see box*). Each has its own strong characteristics—and weaknesses. Resistance to heat, cold, abrasion, weather and electricity may all be important in the selection of the right plastic for any given job. But no one product can rate "excellent" in all categories; therefore, the molder much choose the one that appears to have the combination of properties that is most nearly satisfactory.

In helping the molder make this choice, the plastic salesman must try to divorce himself from his own product line. It isn't easy to recommend a competitor's plastic, admit the salesmen, but the ordeal is lightened by the sure knowledge that long-term gains will come only to those products that are consistently limited to proper uses.

In advising on design, the salesman also finds himself walking on eggs. Insisting, for instance, that a shell wall be thickened can easily be construed as an unloyal attempt to sell more plastic. Yet everyone will lose if a poorly designed product is allowed to reach the market.

Question Mark: There are differences of opinion among the plastic sellers as to the amount of coercion that can be applied in pushing this type of advice. Most companies feel they are limited to persuasion and "selling." But at least one major producer is currently using its trademark as a potent control mechanism.

This company tells its customers that it cannot use the imprint (and thereby benefit from the plastic's national advertising budget) unless the product "meets standards."

Of several thousand products tested to date, only two thirds have been passed. The others are not allowed to use the trade-mark imprint.

Most companies, however, feel they have no control over the use of the trade mark—so long as the plastic component is indeed their own. But whatever the policy on this particular, no producer is likely to take the matter to court: the close cooperation between suppliers and molders is too valuable to the growth of the whole industry to allow it to be disturbed by mere details.

tracers...to opportunities in the chemical

REPLIES (Box No.): Address to office nearest you
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CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

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Excellent opportunity for a Senior Adhesive Chemist having considerable experience in compounding Resin Emulsions, Latex, Etc. Locate in Bainbridge, N.Y. Salary—Commensurate with ability. Submit complete resume to:

The Borden Company, Chemical Division
350 Madison Avenue, New York, N.Y.

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Established California Printing Ink Mfgr. for key position in products research. Exper. in syn. resins, emulsions, pigments or plastisols desirable. Excel. opportunity with expanding concern. To work in either L. A. or San Fran. areas. Reply with all details.

P7330 Chemical Week
1111 Wilshire Blvd., Los Angeles 17, Calif.

Selling Opportunity Offered

DISTRIBUTOR WANTED

Manufacturer widely advertised brand of Dynel industrial clothing which is chemical resistant, water resistant, mildewproof wants distributor for south or southwestern states. Laboratory tests prove product superiority. Sales curve headed up and up! Write or wire for details to Sales Manager.

American Allsafe Co.
1245 Niagara Street, Buffalo 13, N. Y.

Position Wanted

Laboratory Glassblower desires position preferably West or Middle West. Experience; 26 years. PW-7274, Chemical Week.

Employment Service

Immediate Openings

FOR CHEMISTS

CHEMICAL ENGINEERS

We now have positions available in practically all fields, including technical service and sales. Salaries range from $4,000 to $8,000. Openings in all sections of the country. Write or phone for full particulars. You inquiry held in confidence.

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17 William St. Newark 2, N. J.

BUSINESS OPPORTUNITIES

$1,000 "finder's fee" offered for lead to new process not yet introduced abroad. Well known U.S. firm with world-wide sales force desires this additional item, preferably patented to sell abroad. Must have unusual merit, and profit-margin, and have large unit-price. Fee payable when we make first sale BO-6784, Chemical Week, 330 W. 42nd St., N.Y.C. 36.

EQUIPMENT - used - surplus

For Sale

Agitated Reactor 347 SS 30 gal. complete, Equipment Clearing House, 285 10 St., Bklyn 15.

Autoclaves, Steel, Hor. 66"x14'7". First Machin- ery Corp., 157 Hudson St., N.Y. 13, N.Y.

Dryer, One Buflovac Double Drum, 5' x 12', Complete latest type for detergents, condition good. $7,500.00 f.o.b. cars. Equipment Inc., P.O. Box 479, Hopewell, Virginia, Phone 844, W. L. Broaddus.

Dryer, Vac. Shelf 20 Shelves, 59 x 78, pump cond. (5) Consolid'd Prod., 18 Pk. Row, N.Y. 38.

Dryers, 2 Stainless Drums; 5'x10'. First Machin- ery Corp., 157 Hudson St., N.Y. 13, N.Y.

Filter, Sweetland No. 7, 41 taps. Heat & Power Co., Inc., 70 Pine St., N.Y. 5.

Filter Press, 42" x 42", Iron Shriver, 18. 27. 36. 54 chambers (10). Consolidated Products, 18 Park Row, N. Y. 38.

Filters, all sizes and types. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Imp Nickel Sulfate-chloride-prompt delivery. J. R. Wayne Inc., 15 Whitehall St., WH 4-5825.

Kettle, St. St. 450 gal. Jktd. & Agit. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Mills, Day 14" x 30" 3 roll high speed roller (4) Consolidated Prod., Inc., 18 Park Row, N.Y. 38.

Mills, Traylor tube, 5'x22', 5'x20', 4'6"x18'6", 4' x 13', stone lined pebble charge (4). Consolidated Products, 18 Park Row, N.Y. 38, N.Y.

Mixer 140 cu. ft. double shaft, Paddle. Heat & Power Co., Inc., 70 Pine St., N.Y. 5.

Motors in a hurry! Explosion proof. All sizes, new and rebuilt. Arthur Wagner Co., 1429 W. Randolph, Chicago 7, Ill.

For Sale

Pebble Mills; 8'x8', Porcelain lined. First Ma- chinery Corp., 157 Hudson St., N.Y. 13, N.Y.

Pebble Mills 10 gal. to 800 gal. porcelain lined 20. Consolidated Prod., 18 Park Row, N.Y. 38.

Reactor, 2000 gal., acid glass, ASME U69. Heat & Power Co., Inc., 70 Pine St., N.Y. 5.

Reactors, Pfaudler Jktd. 400 Ga. First Machinery Corp., N.Y. 13, N.Y.

Screens, Two Patterson Gyro-Centric dustite, three interchamble SS Screens 4, 28 and 65 mesh, capacity one ton per hour. $1,000.00 each. Equipment Inc., P.O. Box 479, Hopewell, Virginia, Phone 844, Braddus.

Strainer Water-C.I., 16", Twin, Type R, Basket type Std. Const. 100 lb. Pressure. Serial No. 44052, Elliot Co., 740 11th Street, N.W., Washington, D.C. Used only a few months, condition is excellent. $1000. Equipment Inc., Phone 844, P.O. Box 479, Hopewell, Va.

Surplus Polyethylene Drum Liners 37" x 62" x 2 mils, lot of 5000 @ 200.00 M, lot of 9500 @ 175.00 M, frt. allowed anywhere in U.S.A. except West Coast. Sample on request. Velisicol Corp., 330 E. Grand Ave., Chicago 11, Illinois.

Tanks, Alum closed—330, 480, and 1450 gal. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Tanks, Steel, Processing, 15,000 gal. vertical, 80 lbs. int. pr.; Turbo agitator 40 HP, coils. Perry Equipment, 1415 N. 6th St., Phila. 22, Pa.

Tanks, S/S, from 3 gal. to 5700 gal. Perry Equipment Corp., 1415 N. 6th St., Phila. 22, Pa.

Tanks, 6,500 gal. capacity, steel storage, recov- ered from dismantled tank cars, coiled & non-coiled. Marshall Railway Equipment Corp., 50 Church St., N.Y. 7, N.Y.

Two Stainless Steel Tanks (304) 9' x 14'9" on straight sides, 6'6" cone bottoms and dished head, over-all 22'8". Shell ¼", heads 5/16" with 70' of 2" SS heater coil. Test 188 P.S.I. Condition like new. Attractively priced. Equipment Inc., Box 479, Hopewell, Va. Phone 844.

Liquidation

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'49 Equipment Used 6 Months Still Installed

3 Pfaudler G.L., 2000 Gal., Jkt'd & Agt'd Reactors. ASME.
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2 Feine 5' x 3' *All Monel* String Discharge Filters.
3 Bufalovak 1-2-3 Effect *Monel* Evaporators 145, 293, 495 Sq. Ft.
1 Hershey *Monel* 3' x 24' Counter Current Dryer.
1 Kennedy #25½ Type S Gyrator Rotary Crusher. 40 H.P.
1 Kennedy 4' x 60' x ½" All Welded Kiln.
1 Raymond Flash Dryer W/Imp. #40 Mill . . . Complete.
1 Kennedy 10" x 24" Chrome Crushing Rolls, 10 H.P.

Miscellaneous:
Sifters, Jaw Crusher, Feeders, Bucket Elevators, Trough & Screw Conveyors, Bins, Dust Collectors, Worthite Pumps.

Send For Bulletin JT

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146 Grand Street New York 13, N. Y.
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Machinery, Chemical and Process. Everything from single item to complete plant. Consolidated Products, 18 Park Row, N. Y. 38.

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Centrifuges	Mixers
Dryers	Pressers
Filters	Pulverizers
	Tanks

Interested in complete plants—either now operating or idle. Give full particulars when writing

W 3117 Chemical Week
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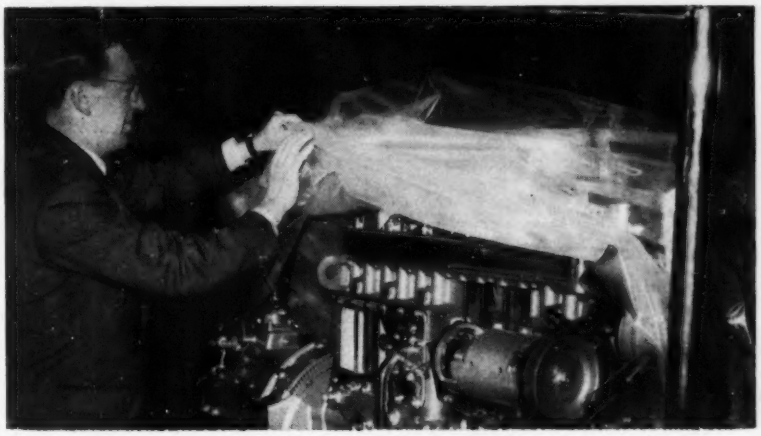

Emphasis on Film

FROM LONDON comes this picture of a Leyland Motors diesel exhibition engine being wrapped in a plastic "traveling suit" made of ICI's Alkathene polyethylene film. The significance: Imperial Chemical Industries (discoverer of polyethylene in 1933 and pioneer in its film form) is renewing its promotion of the film in packaging applications—possibly to set the stage for the new production expected from the joint venture being planned by ICI and Chicago's Visking Corp. (*CW Newsletter, Jan. 17*).

No's for Foes

The self-sufficient, bustling United States often finds itself strangely alone on certain phases of the "cold war." This is particularly true on questions of international trade—and emphatically the case when "trading with the enemy" is the issue.

For the chemical process industries, this overlapping of diplomacy and commerce has moved out of the headlines and into the sales offices. The change came in last fortnight's decision (*CW Newsletter, March 14*) by the Department of Commerce to ask an industry committee* to help determine the best way to keep antibiotics and sulfa drugs away from behind-the-iron-curtain countries.

The Commerce Department's Office of International Trade has juggled the problem gingerly for some time. High-priced, easily "smuggled" drugs are hard items to control – especially through OIT's export-license setup. European-made drugs keep showing up on the wrong side of the Korean front, and Senator Joseph McCarthy's recent decision to investigate various

* Its members: W. R. Jeeves, Parke Davis & Co.; John J. Powers, Chas. Pfizer & Co.; P. van der Stricht, Heyden Chemical Corp.; James N. Hinyard, Merck & Co.; and Charles Henry Lee, E. R. Squibb & Sons.

Major Importers of U.S. Antibiotics and Sulfas
(In $1,000's, First Nine Months, 1952)

	Antibiotics	Sulfas
Argentina	—	275
Brazil	10,335	413
Canada	2,901	311
Colombia	1,880	266
Cuba	2,607	227
Formosa	2,804	256
India	5,148	486
Indonesia	—	324
Japan	2,160	—
Panama	4,316	—
Philippines	1,420	—
Venezuela	—	340

CHEMICAL WEEK • ADVERTISING INDEX
JUNE 27, 1953

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St. Louis 8 .....3615 Olive St., Continental Bldg., Lucas 4867

DISTRIBUTION. . . . .

phases of our incomplete Red embargo may well put the matter squarely on the front pages.

Second Hand: Last December, OIT held up all such drug exports while it "studied the question." Then it started licensing again on a restricted basis, which was supposed to be a reflection of the "needs" of each purchasing country. Protests over this definition of "need" resulted in the cooperative effort now under way.

The committee's task is not a simple one. There is a legitimate demand for American drugs in Western countries. U. S. firms should be allowed to compete for these markets with a maximum of freedom. But this freedom conflicts with the all-too-obvious reluctance of otherwise friendly countries to insist that their own import-exporters refrain from trade with iron-curtain nations.

The problem is especially complicated in the case of countries that have integrated drug industries of their own. Imports from the U.S. may well be used domestically—as promised—but it's theoretically possible that the imports may release domestic production for shipment to Red markets. This theory stumbles, however, in the opinion of some observers, on the reported state of overproduction now extant in Europe.

The committee will be pressed, too, by its own pharmaceutical industry. The export market is a sizable one (*see box*). Its disruption through unwise government regulations could have a serious effect on total drug sales. And now that OIT hasn't found the right answers, the drug makers are pinning their hopes on their own representatives.

•

Colorado Special: Arapahoe Chemicals, Inc. (Boulder, Colo.) has formed a subsidiary, Arapahoe Special Products, Inc., to produce and sell the company's products that involve a fire hazard. Included in this classification are Grignard reagents and dimethoxypthane.

•

California Agency: Nelson A. Howard (Los Angeles, Calif.) has been appointed as the Southern California distributor for Jefferson Chemical Co.

•

On Duty: It looks as if Dow Chemical Ltd. of Canada has won its fight to restrict competitive glycol imports from the U.S. About $6 million/year of glycol mixtures have been coming into the Dominion duty-free as ethylene glycol. Now the Tariff Board has ruled, in effect, that the mixtures can take a 20% duty.

Now...General Chemical

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To serve industry most effectively, General Chemical produces its Crystal Sodium Thiosulfate in three key locations—on the eastern seaboard, in the mid-west, and on the west coast—and maintains stocks at distributing stations in centers of commerce throughout the nation.

And to meet industry's varied requirements, General offers Crystal "Hypo" in three preferred grades—all photographic quality: Prismatic Rice (thru 4 on 14 mesh); Granular (thru 16 mesh); and Selected Universal (thru 18 mesh).

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